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PAPER TRADE JOURNAL

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ESTABLISHED IN 1872

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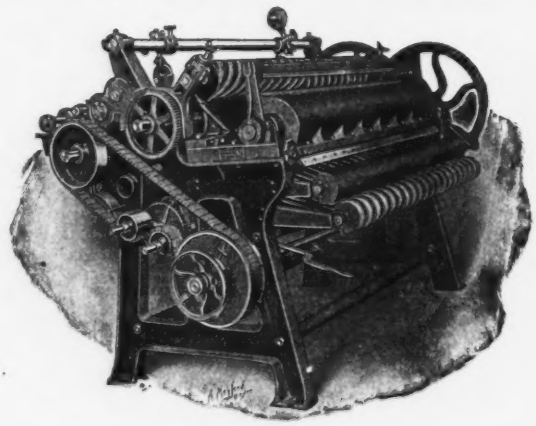

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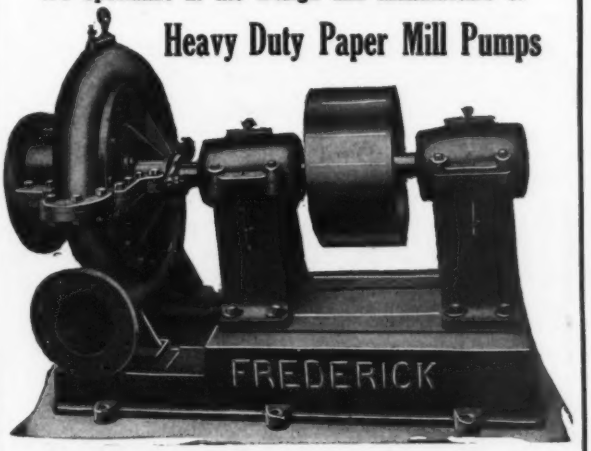

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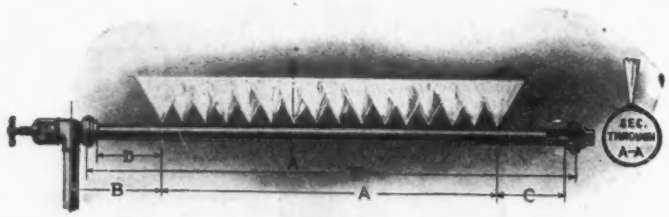

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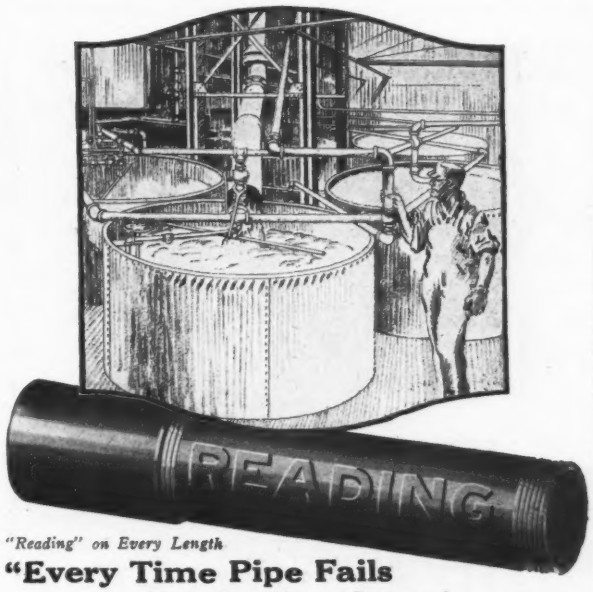

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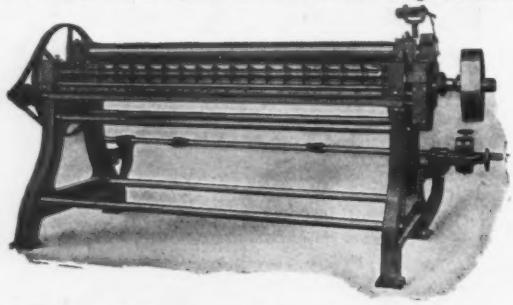

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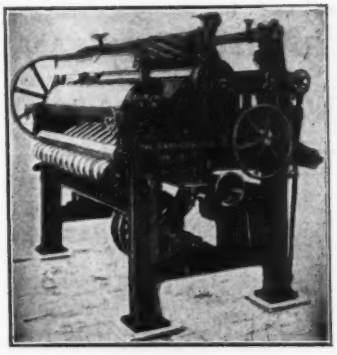

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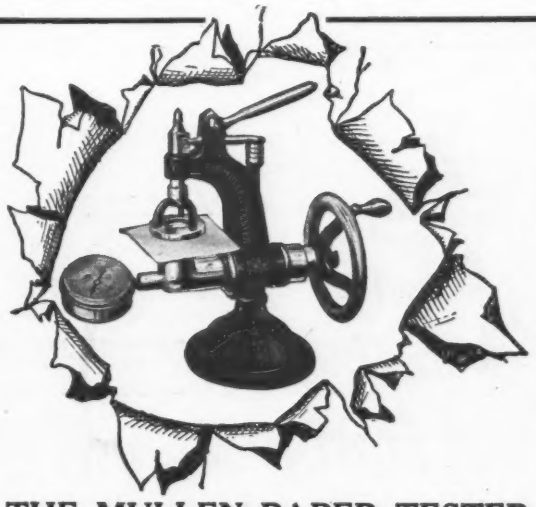

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FIFTIETH YEAR

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MR. CARLISLE AFTER MEETING SAYS "LOOKS LIKE STRIKE"

Unions It Is Believed Will Not Concede Demands of Manufacturers Made at Meeting in New York Last Week of 10 Per Cent Reduction In Wages of Skilled Workmen, No Wage Scale for Unskilled Workmen and Elimination of the Time and a Half Clause for Overtime—Manufacturers in Good Position and Open Shop Is Expected to Be the Outcome of the Trouble If It Occurs.

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., April 17, 1922.—Acceptance of manufacturers' terms by the union employees is the only thing that will avoid a strike in organized news print paper mills in this section on May 1, according to an expression on that point Saturday by Floyd L. Carlisle, president of the St. Regis and Hanna Paper Company groups. He had just returned from New York where the combined manufacturers had agreed upon action which spells the greatest and most far reaching labor combat of years, and where the labor leaders were given an ultimatum. In his interview Saturday morning there was no mistaking the attitude of Mr. Carlisle and his associates on the point of being determined to make the fight at this time.

Conference Again April 26

The only milestone between now and May 1 that offers a chance for alteration of the pending developments, is the joint conference in New York on April 26 between a committee of manufacturers and labor leaders. Mr. Carlisle will attend that conference, but from his general attitude it is concluded that there is little hope of averting a strike, unless the unions accept terms offered.

"Unless they accept our terms it looks as though there would be a strike," said Mr. Carlisle. "The St. Regis and Hanna companies have a lot of paper in storage to meet such an emergency."

More Manufacturers Than Last Year

Mr. Carlisle said that more manufacturers were represented at the recent meeting than participated in the deliberations last year. He said that these companies manufacture 4,500 tons of news print daily with more than half of it made in this country. In the agreement mills in the United States and Canada are 100,000 men who will be affected by the ultimate decision.

In the mills of Northern New York under labor agreements are employed about 2,500 men. The St. Regis and Hanna mills employ 1,800, the DeGrasse Paper Company employs about 600, the Sherman Paper Company over 100 and the New York *World* mill at High Falls has a small number of men.

Manufacturers Want 10 Per Cent Reduction

The manufacturers demand a 10 per cent reduction in the wages of skilled workmen, no wage scale agreement for unskilled workmen and elimination of the time and a half clause for over time. Mr. Carlisle pointed out that the three hour shift in paper mills is the rule anyway, involving the eight hour day, but that for unskilled labor it is improper to maintain the eight hour day with time and a half for over time when the men prefer to work longer hours and fair play to the employer demands it. He said that the war labor board found that cost of living was 53 per cent above 1914 last year, and there had been a further drop, but with the 10 per cent reduction demanded the skilled workmen would be on the basis of 65 per cent cost of living.

Open Shop May Be Outcome

The open shop is expected to be the outcome of the pending troubles. Manufacturers here admit that such a conclusion is reasonable. It is pointed out that this is the most propitious time possible for a fight to the finish between manufacturers and the unions. It is considered possible that the paper makers' organization will accept terms, but there is no hope expressed that the pulp and sulphite workers under J. P. Burke will be even given an agreement.

The success of the International Paper Company in its strike which now finds the company making more paper than it can sell, is viewed with optimism by manufacturers. They take the position that the unions have been drained in the I. P. strike and are in poor shape to undertake another battle. They also realize that unskilled labor is abundant at this time and the places of strikers can easily be filled. The demand for paper is not as strong as might be hoped by the manufacturers and a strike would improve conditions in that respect. Also, the companies are well supplied with storage to meet a strike for sufficient period to permit the reorganization of mills.

Union Not Expected to Accept Proposition

While there is to be a conference on the 26th, no one believes that the union leaders will accept the proposition of the manufacturers nor the manufacturers will concede much, so a strike is believed to be an absolute certainty on May 1 and a fight to the finish expected.

Exports of Paper and Pulp

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 19, 1922.—Grosvenor M. Jones, chief of the Paper Division of the Department of Commerce has the following to say regarding the exportation of pulp and paper as compared with production.

Figures compiled by the United States Bureau of the Census and by the Bureau of Foreign and Domestic Commerce indicate that in the whole field of pulp, paper, and paper products the proportion of exports to domestic production increased from 2.3 per cent in 1914 to 6.1 per cent in 1919. The actual figures are as follows: Production in 1914, $496,595,000, and in 1919, $1,185,430,000; exports in 1914, $11,553,000, and in 1919, $71,792,000. These figures do not include books, music, and other printed matter. Although this increase in the proportion of exports to domestic production occurred between 1914 and 1919, a great decrease in our exports of paper has taken place since 1919. In the case of news print, book, and wrapping paper, three of the most important kinds of paper, it is found that although in 1919 the proportion of exports to domestic production had increased to 7.5 per cent from 2.1 per cent in 1914 in 1920 this proportion was 3.6 per cent and in 1921 had fallen as low as 1.9 per cent, which was even less than in 1914. It is impossible to make an accurate comparison on grades of paper other than the above three on account of a lack of import figures on the basis of quantity.

In the field of wood pulp the proportion of exports to domestic production has held fairly firm since 1919. In 1914 this proportion was five-tenths of 1 per cent; in 1919 it had risen to 1.2 per cent; in 1920 and 1921 it was eight-tenths of 1 per cent and 1 per cent, respectively.

Union Bag & Paper Bond Issue

At the annual meeting of Union Bag and Paper Corporation stockholders ratified the proposal for the creation of a $15,000,000 authorized bond issue.

While stockholders authorized a $15,000,000 bond issue it was pointed out at the meeting that only approximately $7,000,000 will be issued at this time to provide the company with additional working capital. Out of the proceeds of the $7,000,000 contemplated bond issue there will be retired $2,195,000 5 per cent bonds now outstanding.

CANADA MAY RETALIATE FOR U. S. TARIFF BARRIER

Hon. L. A. Taschereau, Premier of Quebec, States That Federal Government of Canada Would Be Justified in Levying an Export Duty on Pulpwood Cut on Private Lands If United States Persists in Present Tariff Plans—New News Print Mill of the International Paper Co. at Three Rivers Starts Production—Increased Demand for All Kinds of Paper and Particularly News Is Reported.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., April 17, 1922.—The Hon. L. A. Taschereau, Premier of Quebec, in an interview on the Fordney Tariff stated that if the United States persisted in raising barriers against Canadian products he considered the Federal Government would be justified in levying an export duty on pulpwood cut on private lands, or, he asked, would the Canadian Federal Government agree that Canada be considered as fief of the United States? Every year, he said, there was exported from the province of Quebec nearly 1,000,000 cords of pulpwood cut from private properties, which means that ten thousand acres of forest lands are razed every year for the benefit of American mills. "Our Canadian mills," he continued, "will soon have insufficient pulpwood for their own requirements. We have regions such as the St. Maurice, where we cannot permit forest operators to cut from the basin of this river all the wood they require to keep their mills running at full capacity. They will, therefore, be obliged to buy from other lessees and owners of private lands the wood necessary to make up the shortage of their supply. Ottawa will perhaps see therein one more reason to levy a high duty on the export of pulpwood to the United States. The attitude of our neighbors invites this action. This attitude is all the more provoking, as the American railways, with the object of favoring their own people, imposed prohibitive freight rates on the wood in the rough. In the face of such an attitude, there is reason to ask if Ottawa will agree that Canada be considered as a fief of the United States."

The Spruce Bud-Worm Plague

As briefly stated a couple of weeks ago, it is now considered that the spruce bud-worm which has been devastating the forests of New Brunswick has run its course. This is confirmed by the report of John Tothill, of the Dominion Entomological Branch, who has made an extensive survey of the forests for the purpose of determining the extent of the ravages of the spruce bud-worm. No new outbreaks have been discovered for some time, though some slight infestations were reported last summer in Gloucester County, near the Quebec border. A gratifying feature of the situation is that the spruce which has attacked is making a rapid recovery, and will show little effects of the attack in a few years' time beyond the slight suppression in growth. The percentage of attacked balsam fir which is recovering is, however, very small. The bud-worm plague has proved the greatest calamity to befall the forests of the province since the larch saw-fly plague which broke out in the early eighties of the last century and killed practically all the tamarac. It is estimated that the bud-worm pest destroyed four million feet of balsam fir and practically destroyed 360 million feet of spruce on the Crown Lands of the Province. The damage done to private timber lands was also serious. The amount of timber destroyed is equal to the amount cut on the Crown Lands for the period of sixteen years, and according to the estimates of the Hon. C. W. Robinson, Minister of Lands and Mines, represents a stumpage value of about $19,000,000, which should have flowed into the provincial treasury during the next fifty years.

Many of the forest areas in which balsam predominated are now a vast wilderness of dead trees, mostly fallen and partially decayed. Much of the dead timber was salvaged but the larger percentage could not be removed for various reasons and so became a dead loss. The accumulation of so much dead material has left the forests in a rather serious state, providing a stamping ground for the development of bark beetles and wood-boring insects, as well as forming a dangerous fire hazard, and a menace to the forest in general. Considered collectively, however, the loss due to the bud-worm, while serious, is by no means disastrous. The stands of spruce, the backbone of the lumber industry, aggregate nearly twice the quantity of fir, and valuable stands of cedar, hemlock, pine, maple, birch, beech, and poplar have been untouched by the plague. The survey made under Mr. Tothill's direction showed that in the matter of reproduction the forests had suffered very little and this fact, coupled with the rapid recovery of the spruce, give a much brighter outlook than could have been forecast a year or two ago.

New Paper Mill Starts Operation

The new paper mill of the International Paper Company at Three Rivers, Que., started the production of news print last week, when the first of the four paper machines came into operation. This machine has a capacity of 96 tons per day. The rated production of the four machines will be 384 tons per day. The mill has been making pulp for a considerable time past and it started grinding wood for the manufacture of news print last week.

Business Picking Up

An increased demand for all kinds of paper, particularly news print, and for lumber and other wood products, is reported, and a much more hopeful outlook is beginning to prevail than has been the case for a considerable time past. This will have a marked effect on the prosperity of Canada for wood and wood products constitute over 23 per cent of the value of Canada's exports. The following table for 12 months ending January this year will show the position occupied by the forest industries.

	TWELVE MONTHS ENDING JANUARY		
	1922	1921	1920
Unmanufactured wood	$72,271,997	$120,682,916	$97,174,926
Wood pulp	34,313,794	74,926,326	38,261,041
Manufactured wood	3,024,721	4,336,982	3,207,318
Paper	73,399,252	88,713,450	60,920,300
	183,009,764	288,659,674	199,563,585
Other exports	584,975,320	946,961,910	1,043.022,308
	$767,985,084	$1,235,621,584	$1,242,585,893
Percentage of wood and wood products to all exports	23. 8 per cent	23.3 per cent	16.0 per cent

In connection with the revival in the demand for news print the Canadian Pulp and Paper Association has issued to its members a special Bulletin quoting an article which appeared in a recent issue of the PAPER TRADE JOURNAL analyzing the situation and showing that the large metropolitan dailies were now issuing bigger editions than ever before.

A. L. Dawe, of the Canadian Export Paper Company, who has just returned from a month's trip to the United States, states that he found everywhere that all the mills represented by his company are running at capacity and that the St. Maurice & Company's mill is also fully employed.

Revise Specifications for Envelopes

Several conferences have been held in Washington recently of the Interdepartmental Committee appointed by the Post Office Department to revise specifications for the purchase of envelopes by the Government.

Forty-three items were either eliminated from the schedule by the committee or merged with other items. It was recommended by this committee that standard samples of paper for color and finish be used, and the quality and specifications were modified to more nearly conform to trade practices.

CO-OPERATIVE PAPER BUYING IS CONSIDERED IN CHICAGO

Some Thirty District Representatives of United Typothetae of America Favor Resolution Recommending that Printers in the Various Cities of the Country Organize Local Buying Committees and Purchase Their Paper Supplies Through Such Committees from Sources Where Their Just Claims Are Recognized—Bourke-Rice Envelope Co. Leases New Quarters at 522 South Clinton St.—Paper Box Men Meet.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, April 17, 1922.—The paper merchants here are not anxious to speak about the activities of the United Typothetæ of America, which organization represents some 5,000 printers in United States and Canada, in connection with the paper purchasing question. This organization is now proposing a plan of co-operative buying by printers in localities where the retail price list has not been established. Some thirty district representatives of the printers' organization held an executive meeting in Chicago, at the Drake Hotel, recently, and one of the most important topics of the meeting, according to those in authority, was the paper purchasing question. A resolution was passed at that meeting "recommending that the printers in the various cities of the country organize local buying committees and purchase their paper supplies through such committees from sources where their just claims are recognized."

The following resolution was adopted:

"In consideration of the Mennen Decision, it is recommended that local Typothetæ adopt a co-operative paper buying association wherever owing to local conditions it may be deemed advisable, as suggested in the following form:

"Printer Co-operative Paper Specification and Buying Association.

"To be signed by participating printer and filed with local Paper Specification and Buying Committee, for the purpose of standardizing the purchase of local paper supplies.

"We (I) hereby authorize the duly appointed Paper Specification and Buying Committee of.....to select and purchase for our account all paper supplies required by the undersigned until further notice, it being understood that all paper purchased under this authorization shall be manufacturers' identified papers only.

"Said committee to purchase in accordance with specifications as to prices and grades, as we (I) may indicate on each buying order. Said Committee to have full power to make all purchases under this authorization from such sources as in its judgment may be deemed best. The undersigned agree to pay all bills rendered under this authorization in not exceeding thirty (30) days from date of invoice, less a discount of twenty (20) per cent and such other usual cash discounts as may be agreed upon between said committee and place of purchase.

"The printers believe that the purchases made under this arrangement and in accordance with the Mennen Decision will result in co-operative purchase of a very large tonnage heretofore purchased of the paper jobber and at a large saving in cost."

The U. T. A. has asked for the adoption of this co-operative buying program by the local Typothetæ saying that "the printing industry is the only major industry in the country where the jobbers or wholesalers continue to publish net lists, thereby depriving the printer of receiving that fair and equitable assistance in the resale of paper which is given to substantially every other retail buyer."

Bourke-Rice Envelope Co. Leases New Quarters

The Bourke-Rice Envelope Company has leased the second floor of the building at 522 South Clinton street, Chicago, for a term of years at a total rental of $24,000. This is to be the new address of this envelope company, whose former plant was burned out in the near west side fire last month, when between $10,000,000 and $15,000,000 damage was done. The origin of this blaze is now said to have been in a lamp factory, and is traced to spontaneous combustion of oil soaked waste. Mr. Bourke, president of this envelope firm, expects to make his new plant one of the most modern in this section of the country.

Set-Up Division of Carton Club Meets

The Set-Up division of the Carton Club of Chicago, held its regular monthly meeting for April, in the rooms of the Lumber Exchange, on the evening of Wednesday, April 12. Several matters of interest to these members of the paper box trade were brought up for discussion. Members of the Near East Relief Committee soliciting funds for the work being carried on by America in the Near East spoke to the members and showed a moving picture depicting conditions as they are found in starving Russia. The paper box trade of Chicago has had allotted to it twenty orphans to feed and house for one year at $60 each.

Brown Co. to Issue Bonds

Announcement was made last week that a brokerage syndicate would shortly place on the market an issue of $3,000,000 Brown Company 6 per cent series "B" serial gold debenture bonds dated March 15, 1921, due from March 15, 1923 to March 15, 1942, at prices yielding from 6 to 6½ per cent. The authorized issue is $15,000,000 and there is now outstanding $6,750,000 in series "A" and $3,000,000 series "B." H. J. Brown is president of this company, O. B. Brown, vice-president and treasurer, W. R. Brown assistant treasurer, and D. P. Brown manager. This company, one of the leading producers of bleached sulphite fiber pulp and kraft wrapping, has main offices in Portland, Me., and Chicago offices at 110 South Dearborn street.

General News of the Trade

Alexander Thomson, vice-president of the Champion Coated Paper Company, spent a day or two in Chicago this week, visiting, and making headquarters at the Chicago office in charge of "Bob" Butterworth.

After May 1, the Chicago offices of the Champion Coated Paper Company which have been located in the Tribune Building for the past fifteen years, will be added to the growing list of paper houses which are making their headquarters in the Conway Building, 111 West Washington street. Removal of this office is to take place about the 28th or 29th of this month. The firm will have suite 1241 of the Conway Building which will give it approximately the same space, and it is felt more satisfactory service for the local trade.

The Seaman Paper Company, Chicago offices, have announced that they are preparing an advertising campaign. They have standardized their style of literature borders, the same design being used on price lists, announcements and case labels. This company recently added several new lines including among them: Equator Offset, Caravan S. & S. C., Gummed Paper, Caravan Superfine, Pictorial Enamel and Brocade Covers. Salesmen have been added to the force recently to handle these new lines in conjunction with other stocks handled by the company. They will also soon get out a very high grade book on enamels. This will be sent to advertising managers and printers.

E. R. Jones, of the Kansas City Paper House, spent a couple of days in Chicago this week on a business trip.

G. E. Runcie, formerly identified with the Graham Paper Company in Chicago, is now with the Champion Coated Paper Company.

May We Quote?

We are now booking tonnage for first open water shipment as well as for shipments for balance of the year 1922

WELL KNOWN SCANDINAVIAN

Unbleached and Easy Bleaching

SULPHATES

Unbleached—Easy Bleaching—Bleached

ALSO

MITSCHERLICH

SULPHITES

Let Us Quote You Our Prices!

A. J. PAGEL & CO., Inc.

347 Madison Avenue New York City

SLOW INCREASE IN DEMAND IN PHILADELPHIA MARKET

Business Is Said to Show a Gain of From 15 to 25 Per Cent Over a Month Ago—More Inquiry Is Noted for High Priced Papers Which Is Regarded by Some as an Encouraging Sign—Coarse Papers Continue Without Much Change, Although the Trend Is Upward—Co-operative Plan to Increase Sales of Printing—John M. Driver Co. Expanding—Other News of the Trade.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., April 18, 1922.—Absence of paper house executives and department heads from the city during the big convention week of the National Association did not interfere with the steady increase of business which has been enjoyed since the distinct turn in the tide took place early last month. Orders are increasing in numbers in a larger proportion than in size, but everywhere among the distributors there is told the same story of steadily and healthfully improving conditions. Some of the houses report a very marked gain, but an important element in this increase undoubtedly lies in the reapportionment of business due to changes of personnel notably in the D. L. Ward Company and the carrying along by employees of accounts which they had. But even when allowance is made for this exceptional gain, the fact still remains that the aggregate of all business done by all the houses shows a gain of anywhere from 15 to 25 per cent over a month ago.

The betterment has not been confined to any particular class of consumers. Publishers who hitherto have been entirely indifferent to the importunities of salesmen are displaying interest, while the rank and file of the printers seeing improvement ahead are disposed to extend their requirements slightly, although unquestionably there still is great circumspection in ordering and possible requirements of the future are heavily discounted.

Inquiry for High-Priced Papers

A commentary, satisfying or otherwise, depending solely upon the points of view, is the fact that when it became noised about in the trade during the week that one of the larger printing houses was in the market for about 50 reams of paper retailing at a shade under 60 cents a pound, for the publication under exact specifications of a 100,000 copy edition of a high class booklet, bids fairly were showered upon the prospective buyer and well grounded reports are that prices were considerably shaded. The optimists point to the incident in justification of their belief that business is improving by emphasizing the fact that orders for high-priced papers again are appearing; the pessimists suggest that when a 50-ream order excites so much attention as this one has, it is indicative that they by no means are common and that activity in the trade is still considerably below par. The realists content themselves with the observation that while this particular order excited much interest, there are appearing others of lesser size, but also for high-grade papers and that it is a fair assumption that buying is on the upward trend. All the price lists of the fine paper distributors now have made their appearance and in none of them is there a noteworthy change in quotation. Values seem to have become completely stabilized in this division of the trade. Most of the lists contain a few additions, but these two are rather limited. There appeared also during the week the third issue of the suggested retail price list, otherwise the long list published under the imprint of the Typothetæ of Philadelphia, but actually printed in New York. In the present issue there is appended a large mass of information regarding the alleged progress of the long list movement. So far as the Philadelphia distributors are concerned, the propaganda here seems to have died of inannition. Announcement of the resignation of one of the committee to which the Typothetæ had delegated the long price list fight, shortly is anticipated. He has informed close friends among the paper distributors that while theoretically the long list still has a slight appeal to him, practical experience since the first of the year has shown him that it is not workable and after all meant nothing to him in terms of dollars and cents and only served to raise a number of embarrassing situations.

Coarse Papers Without Change

The coarse paper trade continued during the week with substantially no change from the preceding week. The trend is still upward, but is moving very slowly, indeed. Mill men aplenty have been visiting the city, but part of the reason for their presence is a nearby New York gathering. Nevertheless, they are very solicitous for orders and former quotations are not uniformly adhered to. Still, the concessions they are willing to make for business are not very large.

Close for Holidays

In compliance with Philadelphia trade custom, all the distributors closed their places at one o'clock on Good Friday. It is, however, also a trade custom among the mills to remain closed over Easter Monday and virtually all of them did so. Their action and the extreme dullness in the paper stock trade caused most of the larger packers also to keep shops closed Easter Monday. During the week before, there was just about enough movement of stock to warrant keeping their warehouses open, but a number of them made the comment that so far as the ordinary run of mixed and commons was concerned, they actually would have been better off if they had handled none of these grades.

No Demand for Paper Stock

Quotations on all lines of paper stock remain stationary solely because there has not been enough mill demand actually to make a market. During the week the Typothetæ of Philodelphia finally took up in earnest its program of a collective sale of printer's waste and systematic collection from those firms which entered into the scheme. The long delay from the time the proposition first was announced was due to the detention in the Pittsburgh district of J O. Adams, district secretary of the Typothetæ, who has given long study to the question of disposal by the printers of their waste under the most favorable conditions. It is believed that within the coming week an invitation again will go out to the representative stock dealers to confer with Typothetæ officials.

Form Wilcox, Walter Furlong Paper Co.

The only definite announcement made during the week regarding the one topic of absorbing interest to the Philadelphia trade, the new paper distributing house, an outgrowth of resignations from the D. L. Ward Company was that it will be incorporated under the laws of Pennsylvania as the Wilcox, Walter, Furlong Paper Company and that its headquarters will be at 231 Chestnut street. These premises entered paper trade history many years ago when they were occupied by E. Latimer, Jr., now at 126 No. 4th street. Subsequently and until a few months ago, they were leased by the discontinued Lowe Paper Company. As indicated in the PAPER TRADE JOURNAL, the members of the firm are William S. Wilcox, a vice-president of the Ward Company and head of its book department, E. T. Walter, Jr., also vice-president and head of its coarse paper department and Thomas S. Furlong, vice-president and head of the fine paper division. In commenting on the resignations, President George W. Ward said: "I do not wish to minimize the importance of the withdrawal of Mr. Wilcox, Mr. Furlong and Mr. Walter. I acknowledge their resignations with regret.

"There is only one published statement made that I wish now to absolutely take exception to, and that is that my personal, confidential, financial secretary is resigning. The young lady referred to is a sister-in-law of Mr. Walter and was in our bookkeeping

(Continued on page 22)

Introducing

THE PERKINS TENSILE TESTER

This new Tester meets a distinct need of manufacturers and users of paper. They naturally put this need up to B. F. PERKINS & SON, INC., makers of the standard Mullen Testers adopted by the United States Government and in constant use by paper manufacturers and buyers in all parts of the world. The PERKINS TENSILE TESTER gives

an Accurate Tensile or Pull Test
in a straight vertical line
—without cramping
—without side pull

By turning the handwheel the piece of paper under test is subjected to a direct pull which operates on the fluid in the cylinder. Simultaneously the standard pressure gauge is acted upon by the fluid. At the instant the paper breaks, the pointer on the gauge automatically stops, and remains stationery till released, indicating the exact tensile strength of the paper IN POUNDS PER INCH STRIP to the exact point of rupture. The PERKINS TENSILE TESTER is

EXACTNESS

THE PERKINS TENSILE TESTER is a strictly modern high-grade machine which, together with the MULLEN PAPER TESTER, gives to manufacturers and users of paper greatly increased assurance of *uniform excellence of product* in keeping with modern technical and business requirements.

simple—easily operated—thoroughly reliable

The new Tester is in full keeping with the reputation which the house of B. F. Perkins & Son, Inc. has maintained for nearly half a century. The best possible construction and workmanship is assured by the insistence of this firm on superior quality, and also by their long experience in making and perfecting standard testing apparatus for the practical testing of paper stock.

Write for Full Information to Department P4,

B. F. PERKINS & SON, Inc., Holyoke, Mass.

Manufacturers of the Perkins Tensile Tester—the Mullen Paper Tester—the Jumbo Mullen Tester for Boxboards, Wrapping and Sack Paper, etc.—Perkins Calender Rolls—Perkins Granite Press Rolls—the Perkins Improved Pressure Bulker—Modern Machinery for the Paper Trades.

SLOW INCREASE IN DEMAND IN PHILADELPHIA MARKET

(*Continued from page 20*)

department. By reason of the relationship, it is most natural that she should go with the new Company.

"In conversation with the mills that we represent, all of them are a unit in stating that they have not the slightest intention of disturbing their connections with this company, and expressed a feeling of regret at the severance of the connection of these men, but stated the forming of the new company would in no way interfere with the connections past or present of my company.

"As far as I know there is not the slightest personal difference between these men and myself, although it is a well known fact that certain policies I felt should be put into effect, due to the change in conditions, did not meet with their approval, and as harmonious conditions are desirable in any organization, it is very essential in our interests, as well as their own that the new connection has been made. I can not speak too highly the value these men have been to the company in the past, or to place too much emphasis on my desire for their success in the future.

"Their duties have already been assumed by other members of the organization, myself taking charge for the present at least of the printing paper division and W. W. Seary taking charge of the wrapping division. While the company will unquestionably feel the loss of the services of the men that have withdrawn, I question very much whether under the change of management, a business that has been established for thirty years with many thousands of customers, and with the present personnel, can be greatly affected by their withdrawal. With a business of this size that has been built on such a foundation, it is well that the present management find out whether a few changes can disturb it.

"I would like to impress upon all that the Ward organization as it stands consists of one hundred and seventeen people, many of which have been with the company over five years."

To Increase Demand for Printing

Action taken during the week by the executive committee of the Typothetæ of Philadelphia foreshadows favorable action by it in the cooperative plan designed to increase sales of printing and with it fine papers, outlined at the bi-monthly meeting in March by Joseph A. Borden, head of the service department of the American Writing Paper Company. The account of his address, published rather extensively in the PAPER TRADE JOURNAL, shows that the project of the American Writing Paper Company largely is altruistic and that its chief purpose in the new program of publishing a series of booklets addressed to the printer and salesmen of printing and to the buyer of printed matter is to increase the sale of all printing papers by suggesting new opportunities for the creation of business through the appeal of the printed page. Although a cost of several thousand dollars solely for mailing the booklets, all the expense of whose publication is borne by the American Writing Paper Company, is involved, the executive committee thought so favorably of the project that it authorized the sending out of a questionnaire to members to ascertain to what extent they were willing to participate and to contribute. Upon the return of the questionnaire blanks, the executive committee will take final action and it is regarded as almost certain that this will be favorable.

John M. Driver Co. Expanding

Increased opportunity both for service and for sales for the paper distributors handling glassine papers are afforded by reason of an extension of facilities just completed by the John M. Driver Company, which is now operating a large converting and manufacturing plant at 55th and Hunter Station in the West Philadelphia section and which, with a present capacity of from 5,000,000 to 8,000,000 bags a week contemplates at an early day an increase to 15,000,000. The firm has the equipment for slitting, sheet cutting and fancy embossing of glassine papers direct from the roll and is in a position to give service along three lines to paper distributors. It has also a completely equipped printing plant to supplement the convertion and embossing. Its line of glassine bags comprises almost every possibility of manufacture. Edward Osmun, formerly with the Warren Manufacturing Company of Milford, N. J., where he was expert finisher, will be in charge of the new department. The Driver organization was recently joined by J. Harvey D. Rush, formerly sales manager of the Diamond State Fiber Company of Bridgeport, Pa., who was at the recent election made vice-president and is also general manager of the firm. One of the features upon which the Driver Company is now concentrating its manufacturing facilities is a large output of Holly designed Christmas glassine papers useful for wrapping and for box covering. This is the first year that the Holly design has been made a feature. Many beautiful papers are being turned out embodying these designs. Owing to the heavy number of orders on hand, manufacturing is going on night and day and two shifts are being run to take care of the business demands. A staff of artists has been added to the force, whose duties are to design special effects on specifications and for general purposes. The printing department also is being perfected. Several new units of rotary presses and dies have been added and under the management of William Mardt, superintendent of the printing department, an electrotyping department will be developed, for the purpose of making their special design.

Auer & Twitchell Changes

With the removal of the executive offices of Auer & Twitchel from the Drexel building, to the new manufactory at 20th and Erie avenue, to which also there has been transfered the machinery and equipment of the Consolidated Paper Tube Company, lately located at Beverly, N. J., further executive changes are in contemplation. The firm now has a branch office in the Fifth Avenue building, New York, but in the near future, a new and larger suite is to be taken and a part of the Philadelphia office and sales force will be transferred to New York. The executive offices are to be located on the first floor of the new home and the plant of the Consolidated Company on the rear of the first floor and on the second, the larger quarters enabling the firm to double its capacity. Shipping facilities also have been much increased, the new warehouse opening directly onto a freight platform which will accommodate three cars, but the nearby siding is large enough for twice that number. E. H. Smith, who was superintendent at Beverly, continues in the same capacity in the Philadelphia factory. C. W. Zieber has recently been added to the Philadelphia sales force.

General News of the Trade

The plants of the John Lang Paper Company and of the Universal Waste Paper Market, both in the vicinity of 25th and Callowhill streets, may soon have to be razed to make way for the improvement in connection with the Sesqui-Centennial Exhibition here in 1926. The plan pending before Councils contemplates the beautifying of both banks of the Schuylkill River from the present Park limits down to Market street bridge, and if this is enacted into an ordinance, condemnation proceedings will be begun.

Advertising Manager Hubert S. Foster, of the A. M. Colling Manufacturing Company, has returned to his desk after an absence from illness. The firm is placing on the market two new cover papers, the Damascan and the Algerian, in leatherette effect and with metallic finish.

The plant of N. T. Barry & Company on Lloyd street, converters of tissues into fine grade toilets and napkins, has been remodeled and increased in size. A plot 60x60, adjoining the plant, has been

(*Continued on page 60*)

Those who have hesitated to buy Liquid Chlorine in bulk

Can now do so with full assurance of safety and convenience in handling and storing.

Mathieson

Multiple-Unit Chlorine Tank Car

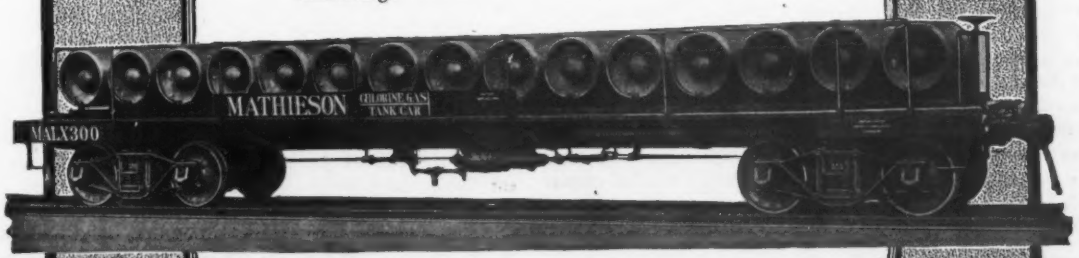
(Patents Pending)

(A specially designed car carrying 15 one-ton individual containers of seamless, forge-welded steel, complying with Interstate Commerce Commission specifications; inspected internally and cleansed before each charging.)

Developed by the Mathieson Organization. Makes safe the shipment, handling and storage of Liquid Chlorine in commercial quantities.

Buy Liquid Chlorine, Mathieson "EAGLE-THISTLE" Brand, in Bulk Quantities and buy it most economically.

We'll be glad to quote price on Liquid Chlorine and send detailed information covering this improved method of shipping and handling.



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WISCONSIN PAPER MILLS HAMPERED BY HIGH WATER

Rivers Overflow their Banks, Wash Out Dams and Compel Suspension of Operations in at Least Half a Dozen Paper Mills—Thousands of Acres In All Parts of the State Still Inundated, but the Gravest Danger Is Passed—Labor Trouble Between Employees and Five or Six Paper Mills Adjusted—New Hotel at Stevens Point Named in Honor of George A. Whiting, Well Known Paper Manufacturer.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 18, 1922.—Almost every paper mill in Wisconsin was seriously hampered last week by high water which threatened repetition of the damage in 1920, when the loss ran into thousands of dollars. The Wisconsin, Fox, Chippewa, Flambeau, Menominee and Peshtigo rivers overflowed their banks, washed out dams, ran into mills and compelled suspension of operations in at least a half dozen paper plants. The flood reached its crest on Tuesday and Wednesday and then began slowly to recede. Thousands of acres in all parts of the State still are inundated but the gravest danger is passed.

The Great Western Paper Company at Ladysmith probably suffered the greatest damage when water undermined the walls of company's machine room, causing them to collapse and the roof to cave in. The entire north wall of the room fell into the river. There was no one in the building at the time. It probably will be several weeks before the mill can resume operations.

Flambeau a Raging Torrent

The Flambeau river was a raging torrent for days, flooding thousands of acres, carrying away parts of small dams and causing some damage to the paper mill plants at Park Falls. The Thornapple river also was exceedingly high for several days.

On Monday water rushed through the pulpmill of the Dells Paper and Pulp Company to a depth of two or three feet, half submerging the grinders and other machinery. The loss was not serious, however. A part of the Holcombe dam, 30 miles above Eau Claire, was carried away, causing a sudden increase in the river level.

The Marionette and Menominee Paper Company Park mills and the Victory Bag and Paper Company plant at Marinette were forced to close down for a few days because high water had cut off their power supply. The flood in the Menominee river was the most serious in several years, but the new dams withstood the strain and the damage was not as severe as two years ago.

At Brokaw the plant of the Wausau Paper Mills Company was partially closed on Saturday and the remainder of the mill suspended operations on Sunday and Monday. The water did not enter the mill but it was hampered in generation of power. There was no damage at the plant. A portion of the basement of the Marathon Paper Mills Company plant was flooded, but there was no damage. The Wausau Sulphate Fibre Company plant at Mosinee, which stands on high ground, was not affected by the high water.

The Wisconsin river began receding on Wednesday and the mill near Wausau began operations. The Consolidated Water Power and Paper Company plant at Wisconsin Rapids and the Nekoosa-Edwards Company mills at Nekoosa and Port Edwards were down for a few days but resumed operations Wednesday. They did not suffer very serious losses. Water rushed into the basement of the new office building of the Consolidated Company, making it necessary to move some of the records and equipment. The Biron mills also were shut down for a short time.

The Union Manufacturing Company and Falls Manufacturing Company plants at Oconto Falls were forced to curtail operations when the dam of the Union Company went out. The Oconto Falls dam, however, remained intact. Parts of Oconto were under three and four feet of water. Tracks were washed out and bridges undermined. Oconto and Oconto Falls probably suffered the heaviest losses because of the flood.

Peshtigo Has Highest Water in History

Peshtigo experienced the highest water in its history. A big gate in the Peshtigo dam was swept away when a number of logs, torn from the Peshtigo Pulp and Paper Company boom crashed into it. Much dynamite was used to break up the log jams and ice floes in order to save the dam and bridges. Back water caused suspension of all power operations. The mills suffered little or no loss except in loss of logs which were swept down in the torrent.

Mills in the Fox river valley were able to continue operating although with considerable difficulty. Backwater in the tailraces made it difficult to operate power plants. Water flowed into the stock room of the Wisconsin Tissue division of the Thilmany Pulp and Paper Company at Appleton, but all the stock had been removed and no damage was caused. The Fox river was continuing to rise long after the other rivers had reached their crest and had started to subside. This was because of the immense volume of water flowing into Lake Winnebago, which feeds the Fox river. Papermill men, however, are not expecting serious damage. The big dam at DePere was strengthened when it became evident that the water would be exceedingly high and there is little fear for its safety. Some of the mills at Neenah were forced to close down for a day or two because their basements were flooded. They did not suffer serious losses.

Labor Trouble Adjusted

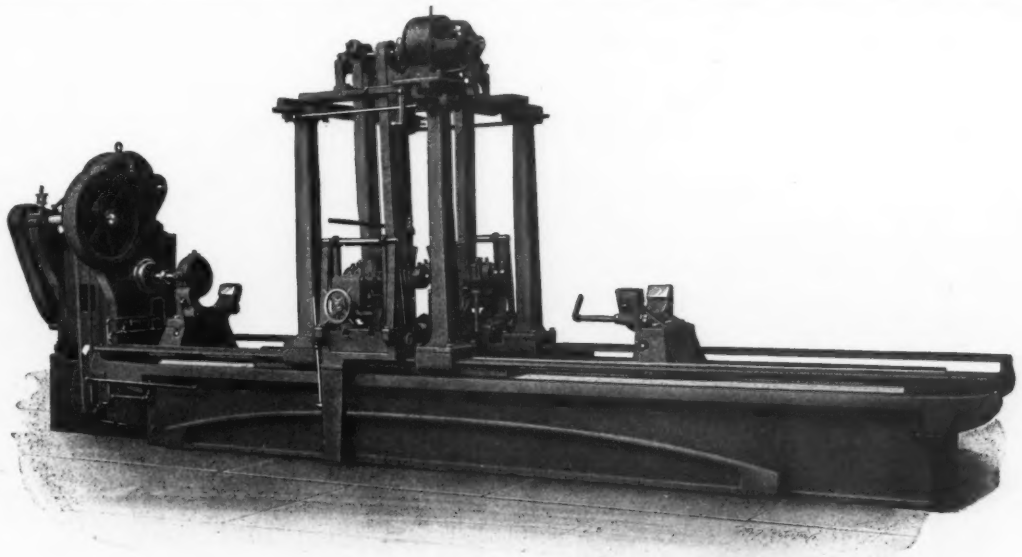
Labor troubles between employees and five or six paper mills in the Fox river valley were adjusted last week and all the men have returned to work. The men left their posts as a protest against cuts in wages ranging from 1 to 4 cents an hour. No announcement was made by the mills or the men concerning the basis on which settlement was reached. Men were out of some of the mills for about a week while others were idle for two or three days.

Hotel Named in Honor of Geo. A. Whiting

The new hotel at Stevens Point, which will cost several hundred thousand dollars will be called "Hotel Whiting" in honor of George A. Whiting, of Neenah, founder and president of the Whiting-Plover Paper Company, at Stevens Point, and president of the George A. Whiting Paper Company, of Menasha. The hotel was named after it was announced that Mr. Whiting, who now is at Hot Springs, Ark., had subscribed $25,000 to the hotel fund. This was the largest single subscription. It was secured by E. A. Oberweiser, secretary and treasurer of the Whiting-Plover Company, who is one of the men most interested in the hotel venture which is more or less of a community movement.

Rebuked for Pardoning Paper Mill Striker

The Supreme Court of Wisconsin last week administered a sharp rebuke to Governor James J. Blaine for attempting to pardon a paper mill striker who had been sent to jail for contempt of court by Judge A. H. Reid. The case attracted State-wide attention. The prisoner, who was a picket in a paper mill strike at Rhinelander, was charged with violating an injunction and sent to jail for contempt. Governor Blaine pardoned him four days before expiration of his sentence and ordered his release. Judge Reid, however, ordered the sheriff to hold the prisoner and the sheriff obeyed. The Governor then ordered the sheriff's removal and suit was started. It was held by the Supreme Court that sentence for contempt of court was not pardonable and ruled that the sheriff had performed his duty in refusing to release the prisoner.



Protective Insurance

If your product is made as well as possible you are protected against complaints and entangling adjustments. Your calender rolls must be in perfect condition or your product will not be up to your standard.

You can keep your rolls in the best condition at lowest cost by having in your plant a Farrel roll grinder at work on your spare rolls or ready to care for unforeseen damage to your calender stack.

We have made and used this grinder exclusively for years in producing the highest class of calender rolls, the best evidence for you as to its quality.

It cost one of our customers the price of a grinder to get one roll reground in a hurry. He had to hire special trains. After that he bought a grinder—he was out for economy.

Write for Bulletin 755

Farrel Foundry & Machine Company

Established 1848

Ansonia, Conn.

Branch Plant:
BUFFALO, N. Y.

NEW COMMUNITY HOUSE OF K. V. P. CO.

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., April 17, 1922.—The Kalamazoo Vegetable Parchment Company's new community house, a structure that for its purposes rivals any similar buildings in western Michigan, was dedicated Saturday and Sunday, with exercises interesting and instructive.

The building is now open for general use and is the most important single element in the social development of Parchment town, a model community built almost entirely through the efforts of Jacob Kindleberger, who has been untiring in his labors to plant proper social and community spirit among his co-workers in the big plant.

Everything that has meant better conditions has had his support. Not only is the big mill a model of productive efficiency, it is also a model plant to work in, when one considers the comfort and well being of the workers. The mills are ideally located and every effort has been made to retain what nature has accomplished in the way of attractive surroundings.

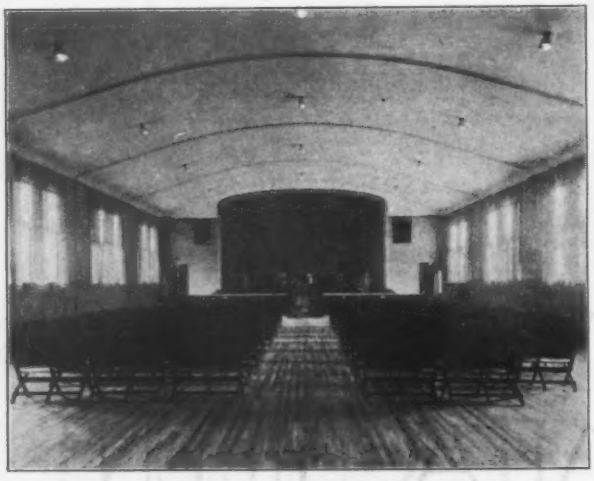
The auditorium, with its balcony will comfortably seat over 600 people. There is also a stage and two dressing rooms. The cafeteria in the basement is 43 by 72 feet in size and 300 can be fed at one time without crowding. The kitchen, 43 by 21 feet, is a model of its kind. The equipment for this department cost over $9,000 and leaves absolutely nothing to be desired in the way of convenience and efficiency. There will be no fire in the building, all steam for heating and cooking being furnished direct from the mill's big boiler plant.

Among other conveniences to be noted is the ventilating system, whereby the air is changed completely every six minutes. There is also a high grade motion picture machine, a silver screen of the best make and an approved radio system.

The recreational grounds will include baseball diamonds and tennis courts.

The dedicatory exercises occupied portions of two days. They opened Saturday noon with luncheon, followed by a program, the speakers being President Kindleberger and Rev. J. Twyson Jones, pastor of the First Congregational church. Supper was served, followed by an address by Rev. John Wirt Dunning, pastor of the First Presbyterian church on "The Value of Harmony in a Community." A fine display of motion pictures concluded the evening.

Sunday dinner was served and in the afternoon, Bishop Theodore Henderson, of Detroit, preached the dedicatory sermon. The three sessions were featured by special music of a high type.



AUDITORIUM, K. V. P. CO. COMMUNITY HOUSE

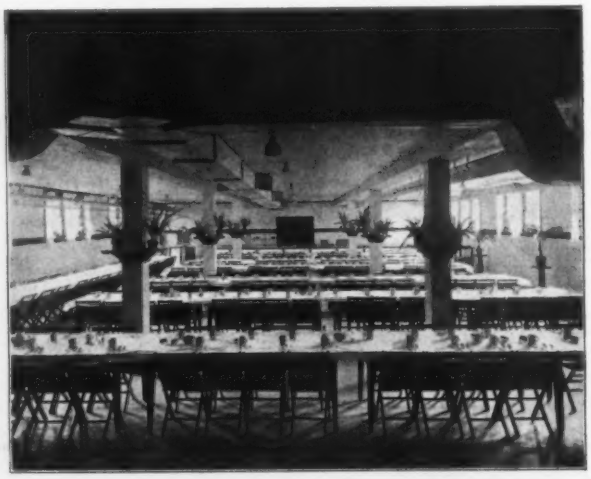
News of the Michigan Trade

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., April 17, 1922.—"Business is good with us along the Pacific coast" says George P. Wigginton, president of the Kalamazoo Loose Leaf Binder Company, who has just returned from an extended trip to California. "That applies to all parts of the country as well" he added. "Our Kalamazoo plant is now working on a high percentage of its maximum capacity."

K. V. P. CO. COMMUNITY HOUSE

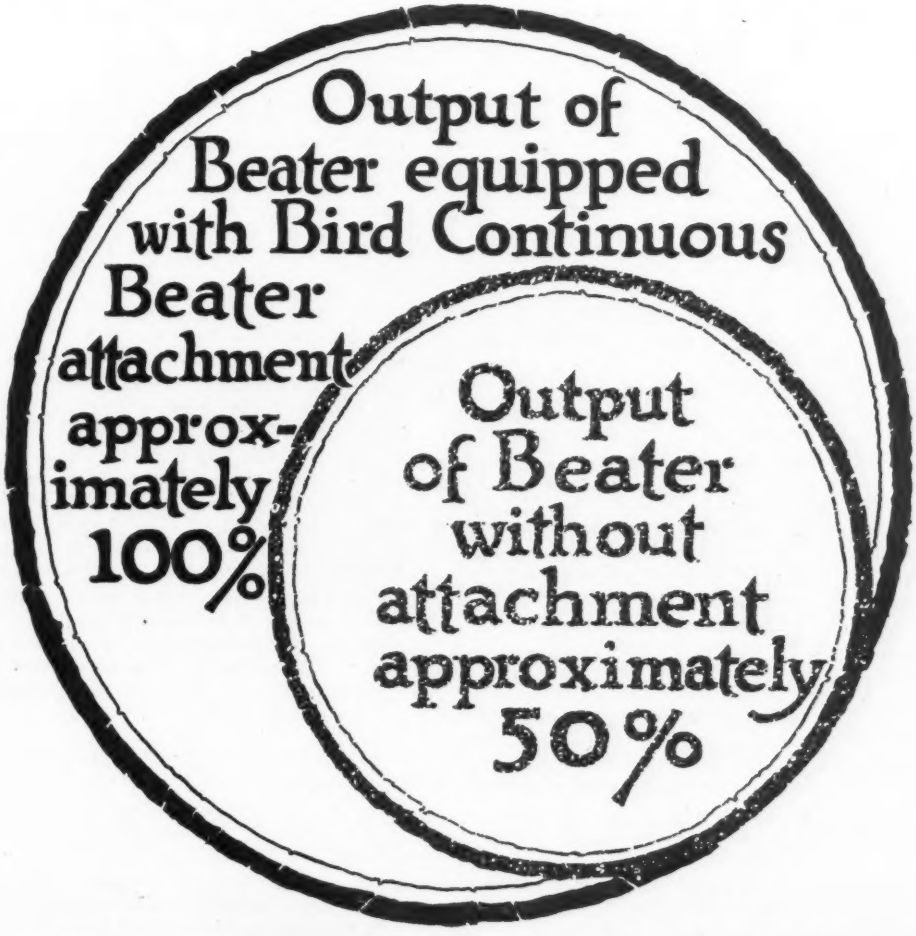
Mr. Wigginton is of the opinion that business generally is picking up, but that all worries and troubles are not yet over.



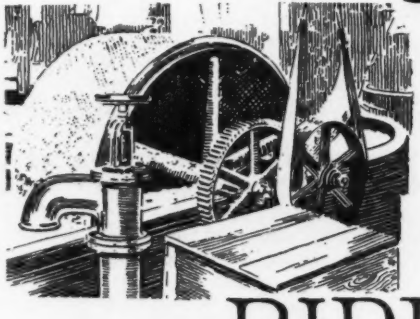
DINING ROOM, K. V. P. CO. COMMUNITY HOUSE

A. L. Pratt, president of the Allied Paper Mills, accompanied by Mrs. Pratt, sails this month for a two months' sojourn in Europe.

Robert T. Weir, general manager of the Constantine Pulp and Paper Company, has returned from a three months' outing in Florida.


Output of Beater equipped with Bird Continuous Beater attachment approximately 100%
Output of Beater without attachment approximately 50%

Perhaps there is an idea here for you-



—A request from you will bring detailed information about the Bird Continuous Beater Attachment.

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Canadian Builders of Bird Machinery:
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88-210

BIRD CONTINUOUS BEATER ATTACHMENT

ELECTRICAL DEVELOPMENT FOR THE PULP AND PAPER MILL

By R. W. Leeper, Power Engineer H. S. Taylor Limited, Montreal, Que.

In the series of articles of which this is the last, several members of the staff of H. S. Taylor, Ltd., have shown the broad service that a complete engineering organization can render the Pulp and Paper Industry. They have pointed out some of the specialized problems.

Electricity in the form of power first became a factor in the pulp and paper industry about 1900—and during the past twenty years the advancement of electrical development has been remarkable. From the first major installation of less than one thousand kilowatts capacity, the demand of the individual mill has increased until at present there are several installations of approximately ten thousand kilowatts, and a few still larger, the average capacity being far in excess of the first important development. We can attribute this advancement principally to the two following reasons:

First. — Power could be electrically distributed and applied throughout the mill and with greatly increased economy over former methods.

Second. — The development of electrical equipment suitable for the service demanded.

methods, are briefly, as follows:

The major advantages of applied electrical power over former

1*st.* — Centralization of power generating and distributing equipment under the control of a few skilled operators.

2*nd.* — Two or more generating units may be installed, thus preventing a complete shut down in case of trouble. Further, more economical operation is a result at partial loads.

3*rd.* — The power from several small developments may be combined and successfully applied.

4*th.* — The manufacturer's plant may be placed in the most advantageous position, irrespective of location of power plant.

5*th.* — The mill buildings may be arranged to reduce to a minimum the handling of the product, without reference to power supply, thus reducing conversion costs.

6*th.* — Extensions to present mill where power supply is exhausted is allowed through ability to secure additional power from outside sources.

7*th.* — Elimination of unnecessary line shafting and belting reduces friction loss and the personal hazard.

8*th.* — Equipment may be operated to secure maximum production with minimum power consumption.

9*th.* — Distribution can be so arranged that troubles in one department will not interfere with another.

10*th.* — With proper sub-division of distribution, power is consumed by a department only when in operation, therefore greater economy of its use is possible.

11*th.* — The power consumption of an individual motor, or for a particular operation may be accurately determined at any time or continuously for cost purposes.

12*th.* — A cleaner, beter and more uniform product is a result.

The majority of pulp and paper mill equipment, in earlier years was mechanically driven by water wheels or a combination of steam and hydraulic units. Power, as a rule, was transmitted to the various machines through a complicated system of gearing, line shafts, ropes drives or belts, the prime mover being direct connected in but a comparatively few of the many different drives. The friction loss for such drives is usually assumed to be about 15 per cent., and this figure is approximately correct under ideal conditions, such as correct shaft and bearing proportions, accurate alignment and proper belt tension. Ideal conditions, however, cannot be maintained and the friction loss, while indeterminate is always greater under load, and is usually higher than the assumed figure of 15 per cent., a safer estimate for this loss being at least 25 per cent and it may be even higher.

The first motor drives naturally followed closely the former methods, the motor replacing the engine or water wheel, as the case might be, the mechanical transmission to a great extent being retained, and often where installed in existing mills the former prime mover was held in reserve to pick up the load in case of trouble. With the growing appreciation of the reliability, economy and high efficiency of motor drive the applications increased, the requirements of individual machines were accurately determined and where necessary special equipment was developed suitable for the service to be performed.

In the application of motors, two systems are in general use which are commonly known as "group" and "individual" drive and for each installation the relative merits of the two systems must be determined. Group drive is usually selected where there are a number of small units, all of which must run at the same time, the shut down of any one affecting or interrupting the process. Such a number of units can be grouped and driven from a line shaft to advantage, good example being the constant line of a paper machine. Such an arrangement is also preferable for a line of duplicate machines such as wet machines, screens, deckers, etc., where individual motors would be both expensive and unnecessary.

Individual drive is preferable where the duty is intermittent, or where the driven machine is a complete unit in itself, as power is consumed only when the limit is in operation, and no interference can be caused through operation of other equipment. Super-calenders, Pumps, Jordans, and Grinders as a rule are in this class. In that it is generally admitted that more minor interruptions to service are caused by trouble with the control equipment, than with the motor itself, especially in the lower ratings, serious consideration should be given to too strict adherence to the principle of individual drive.

Alternating three phase current has been found, after many years' practical experience, best suited for industrial power application and is almost universally selected today for the Pulp and Paper mill. By its use power, either in small or large quantities, can be economically distributed over large areas, it can be readily transformed so that proper voltages are available for various applications, the equipment is simple, and even if operated continuously under extreme conditions, affords maximum reliability and high efficiency with minimum maintenance. The current carrying parts may be totally enclosed, permitting the use of higher voltages without endangering the operators, thus reducing distribution losses and increasing efficiency; the efficiency of a properly designed alternating current installation being at least 80 per cent from the shaft of the prime mover to the driven equipment, not including losses due to long distance high tension transmission lines where required. This efficiency can also be maintained as it is not affected to the same extent by line shaft and belting conditions, as is a purely mechanical system of distribution.

Alternating current motors are especially suited to the service encountered in the Pulp and Paper Industry where reliability is the first consideration, and where the greater percentage of drives are of the constant speed type. The first cost is low, the parts are few in number and built to withstand hard usage, the electrical

(*Continued on page* 30)

THE HYTOR VACUUM PUMP

FOR FLAT BOX SERVICE

Vacuum Produced Absolutely Without Pulsation

No Vibration

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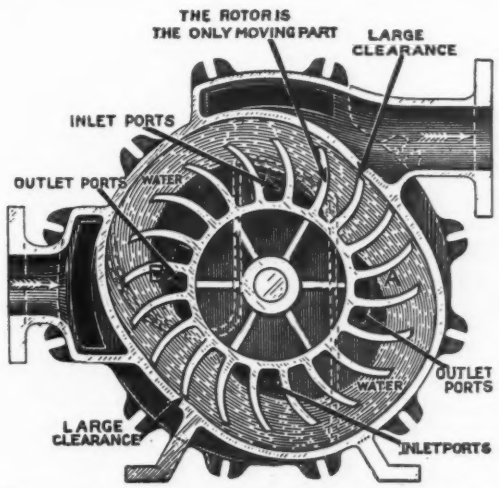

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Distinctive performance and intensified confidence in this machine as a Pulp Thickener, Save-All, Washer or Water Filter insure success in its building.

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Furnished in three sizes with either sprocket or pulley drives

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Try our Split Cams for your Flat Screens

SIMPLICITY, in cylinder and vat construction, operation automatic, and without couch roll, doctor or any complicated moving parts.

DEPENDABILITY, in its simple revolving cylinder only, with nothing to get out of order, requiring little attention, and having a patented principle of maintaining wires always clean, insuring continuous performance.

PRODUCTIVENESS, enormous, through clean wires, large screening surface, patented unique method of discharge and freedom from shut-downs.

DURABILITY, by rigid construction, ample bearing surfaces, nothing to injure wires and highest grade materials.

All these enhance its value and involve upon you the duty of investigation.

ELECTRICAL DEVELOPMENT FOR THE PAPER MILL

(*Continued from page* 28)

characteristics are such that high efficiency is obtained over a wide load range, the windings may be impregnated to resist moisture or acid fumes, and for the types most used a commutator is not required, thus reducing materially the fire hazard. For Pulp and Paper mill drives, three types of alternating current motors are used, commonly known as squirrel-cage, wound-rotor or slip-ring, and synchronous.

Selection of Type of Motor

The squirrel-cage motor is selected where constant speed with moderate starting torque is required which includes the majority of paper mill drives such as Pumps, Jordans, and Chippers.

For those drives where high starting and pull-out torque with constant speed is demanded, the wound-rotor or slip-ring motor is preferable. In this class may be included drives for Beaters, Conveyors under load, and heavy line shafts. Super-calenders are now being driven with slip-ring motors, this application, however, demanding the varying speed type in place of constant speed. Slip-ring motors are more complicated and expensive than the squirrel-cage type, but for heavy duty this additional expenditure is fully justified.

The modern synchronous motor can be selected for Grinders, Jordans and Motor-Generator Sets where of appreciable capacity, the proper application and use of which will improve the power factor, thus increasing the efficiency and capacity of the entire system. It is true that either static or synchronous condensers may be used for this power factor correction, but the initial cost is materially increased thereby.

Direct current in the average mill is confined to those drives where a wide variation of speed is demanded and to certain electrolytic processes necessitating the use of continuous current. It is usually the case, however, that this direct current is supplied from the alternating current circuit through either a motor-generator set or other form of converter.

The use of direct current motors in the mill is generally confined to the variable speed end of paper machine, if electrically driven, the winders, cranes and certain finishing equipment where a wide speed range is required with uniform speed at any point regardless of slight load changes. For such application, adjustable speed, direct current motors are preferable and show distinct advantages over the alternating current type.

The development during the past few years of synchronous motors of high rating for driving wood pulp grinders, has advanced rapidly. In the earlier mills, grinders were almost universally driven by direct connection to water wheels, and while this arrangement is unquestionably efficient, its disadvantages more than offset the saving from either an efficiency or initial cost standpoint. With grinders direct conected to a water wheel the groundwood mill must be located with reference to the water power, even if completely isolated, and therefore may be entirely unsuited from the manufacturing standpoint of its own operation or that of the conversion plant that may be a part of the development; it is frequently found that the available head is not suitable for developing the standard grinder speed, and lowered efficiency and loss of water must result. With electrically driven grinders, location can be selected irrespective of power source, power units can be selected of the highest efficiency, and what may be the most important of all, grinding capacity is not limited to the one source of power, any outside source being available for enlargement. It is also admitted that the modern magazine grinder, which is coming more and more into general use, can not be successfully operated except electrically, its high power demand and necessity for speed control being unsuitable for direct connection to a water wheel except under very unusual conditions.

For the first motor driven grinder installations wound-rotor motors were as a rule selected, the starting characteristics and general development of the synchronous type not being suitable for this heavy duty, although the efficiency and first cost were usually in favor of the latter type. With this grinder application in view, however, together with the demand for synchronous units to improve the exceedingly low power factor conditions prevalent throughout the industry, this lowered power factor greatly reducing the capacity of the generating equipment or being the cause of heavy penalties in the case of purchased power, the electrical manufacturer's attention was directed to the synchronous unit with the result that today the synchronous motor is usually selected for driving grinders, both of the magazine and protect type, its uniform speed and general characteristics adapting it for this use as well as for other locations where a single unit of higher rating is demanded.

Motor drives for the variable speed shaft of paper machines are not common, the non-condensing engine for many years having been the standard installation, and it probably will be for many years to come, from a steam economy standpoint where the entire steam demand is for drying and heating. Under such conditions the steam engine provides an extremely efficient drive and there is little chance for improvement. In mills, however, where the entire power demand is generated with steam or where centralization of power is desired, a motor driven variable line may be operated advantageously, an adjustable speed direct current motor replacing the steam engine and we find today many paper machines being so driven.

This adjustable speed direct current motor drive with a speed range selected for the machine that it is to drive, is in many ways an improvement over former methods, as it has, in eliminating many complicated and unreliable speed changing devices, also eliminating varying speeds on the paper machine. It has not, however, eliminated the back line, belts, cone pulleys and gears, or reduced the loss between prime mover and machine, which is often as high as 50 per cent. of the total power developed, nor has it improved the lack of uniformity between the various sections, to which many breaks can be traced, or reduce maintenance on the back line which is from 20 to 30c. or more per ton of product.

With the demand for higher and still higher machine speeds, increased production and lower operating costs, the problem of maintenance and successful operation of the variable speed drive became more serious until the limits of former types was reached. For several years electrical manufacturers had been experimenting with various schemes by which it was proposed to drive each section with an individual motor, which was an exceedingly difficult problem on account of the close regulation required between sections often over a wide speed range. At present it can be said that the problem is solved, as there are today three different types of sectional individual drives in successful operation. This development eliminates all line shafting, rope drive, belts, gears, clutches and cone pulleys, and provides maximum reliability with minimum maintenance, high efficiency and perfectly adjusted draws between sections, the maximum speed at which the machine may be operated is enormously increased. The sectional drive is applicable to slow speed as well as high speed machines, and while it is not an actual necessity for the slow speed machine, it is the general opinion that its installation is justified.

For either a single motor or sectionally driven machine, where the speed range is greater than about 3 to 1, voltage control or a combination of voltage and field control should be used, this arrangement requiring an individual generator for each drive, and

(*Continued on page* 32)

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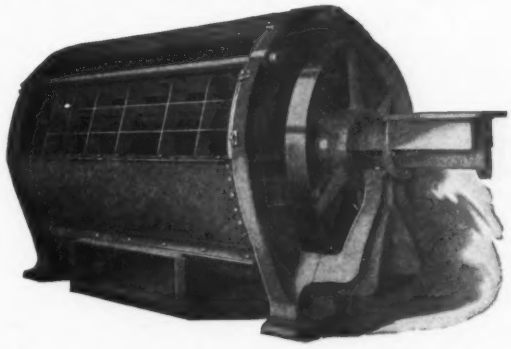

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ELECTRICAL DEVELOPMENT FOR THE PAPER MILL

(*Continued from page* 30)

even where the speed range is such that one generator may be used for two or more machines it may be advisable to install a generator for each machine, to avoid interference with but one unit in case of generator trouble. The generator in this arrangement is usually driven by a non-condensing steam prime mover or coupled in a motor generator set, exhaust steam in the former case being supplied to the dryers, and in the latter this steam being furnished direct from the boilers or from an extraction turbine if this type of equipment be installed.

For those installations where the entire power demand is generated with steam, or where several machines are electrically driven, the extraction or bleeder type of turbine generator set is especially suited, low pressure steam being available upon demand, and not supplied irrespective of demand as is the case of the back pressure unit. This characteristic is of special value during washup or other periods or when breaks occur, or for other causes the dryer steam is shut off the paper machine. Steam from a turbine is also unquestionably superior to that from an engine for drying and heating purposes on account of being absolutely free from all oil which when present, not only reduces the heat transfer in the dryer, but is a constant menace when the condensate is returned to the boilers from which the oil cannot be entirely removed by any known method. Before selecting a turbine of the extraction type, conditions must be carefully analyzed as it obviously cannot be used where the demand for exhaust steam is nearly equal to or greater than due to the load demand.

In the field of auxiliary equipment, such as switching, starting and control, developments have been in keeping with the major apparatus. From exposed knife switches and unsatisfactory fuses, the control has been improved until today all alternating current equipment, even of low capacity, can be protected by oil circuit breakers or similar devices with relays of suitable type. Fuses are still installed for cable protection or to take care of abnormal conditions in the distribution system, but they are not, howecer, depended upon except indirectly to protect equipment. With modern control all current carrying parts are enclosed so that accidental contact due to careless operation, is practically impossible. New resistance metals and insulating materials have been developed, rheostats, relays, contactors, controllers, etc., made more rugged until these parts give little trouble, even in paper mills, where control equipment is often exposed to moisture, acid fumes, extreme temperature changes, and under the control of an operator unskilled in its manipulation, and under these conditions the continuous operation given shows to a remarkable degree the development that has taken place.

For many years the standard temperature guarantee for electrical equipment was for full load, continuous, 40° C. rise; with 25 per cent overload 2 hours, 50 or 55°C. rise, based on an ambient temperature of 25°C. For several years manufacturers of electrical equipment have standardized more and more on a continuous full load rating of 50°C. rise, with no overload, based on an ambient temperature of 40°C. (104°F.). The capacity of equipment rated on the 50 deg. continuous basis is approximately 83 per cent. of the former 40 deg. basis. For some time generator and transformer guarantees have been made on the continuous basis, and for motors this guarantee is now becoming common in the United States and quotations are usually so based unless otherwise specified.

From the manufacturer's standpoint, there are several good reasons for the continuous rating. With the development of better insulating materials, iron of superior electrical characteristics, improved ventilation and design, it is possible to determine accurately the carrying capacity and safe temperature limits. It has also been found that deterioration of the insulation is not increased by operating at high temperature as long as certain safe limits are not exceeded and in many cases modern equipment will, under a given load, attain its maximum temperature in two hours or less, which was not true of the older types, and in order to give an overload guarantee on such apparatus, the capacity must be increased to that extent, thus increasing the initial cost. In the early days it was difficult to determine the power requirements of a particular drive and the overload guarantee was considered a safety factor, resulting in over, rather than under, motoring thus increasing the first cost and reducing the efficiency and power factor.

In a paper mill the load for many machines is variable, requiring the selection of motors for the maximum demand. With 40 deg. rated equipment it was frequently possible to utilize the overload capacity at times of maximum demand whereas it is necessary to select continuous rated motors of higher capacity, as this type of equipment cannot be overloaded, and when this is done the chief advantage of the new rating, that of lower initial cost, is eliminated. On the other hand the power demanded by paper mill equipment under given conditions is well known and continuous rated motors can often be used, thus effecting an appreciable saving. In comparing competitive proposals the temperature rise on which capacities are based must be taken into consideration to avoid unfair comparisons and possible trouble at some futrue date.

Problems of Lighting.

A most casual inspection of the lighting in the average mill will convince anyone that it can be materially improved, and when it is recognized that proper lighting increases efficiency of workmen, reduces accidents, provides more pleasant surroundings and results in a cleaner mill, thus reducing the fire hazard, it should be given the attention it deserves. The operations being continuous, at least half of the product is produced by artificial light and a good lighting system costs but little more than an inferior one.

In laying out the lighting system for a mill, various illumination problems are encountered which may be classified under three heads: local, by means of portable lamps; group, where impractical to illuminate a large area to the intensity required for one or a group of machines; general, to secure even lighting over a large floor. For each of these groups the intensity, quality or color, diffusion and distribution of the light, which are determined by process, hanging height, spacing and color of walls must be considered. As a rule portable lamps are objectionable on account of high maintenance and unsatisfactory lighting, and wherever possible overhead units are preferable, and with modern lighting accessories nearly all mill requirements can be taken care of with this type of distribution. As with other electrical equipment for paper mills, lighting units must be of rugged construction, moisture and acid proof in certain locations, and mounted in an accessible position for cleaning and replacements. From an efficiency and maintenance standpoint it is also good practice to use lamps of high, rather than low, capacity wherever possible.

Electrical equipment as far as the paper mill is concerned is past the experimental stage, and in the building of a new mill or where changes or additions to an old mill are contemplated, it can be definitely determined whether the advantages of electrical methods of power distribution are in favor of its adoption. If equipment suitable for the service is selected and properly installed, it can be depended upon to give service as nearly free from interruptions as any known form of power distribution. Reliability must be the primary consideration, and to insure such a selection all parts must be of rugged construction, capable of withstanding extreme conditions; and accessible so that they can be thoroughly cleaned and readily repaired. Efficiency and power factor are of extreme importance and must seriously be considered, but continuous service is the predominating characteristic that must be fulfilled.

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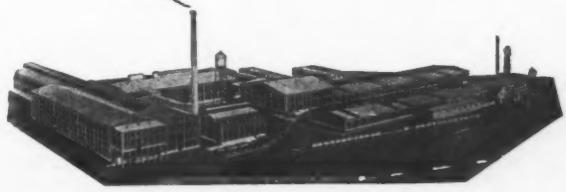


Recent Incorporations

HOOSIER PAPER COMPANY, Marion, Indiana; capital, $25,000; to manufacture paper specialties. Directors, Paul W. Sleven, Andrew W. Scheerer, Charles A. Williams.

NATHANIEL PAPER BOX COMPANY, 20 Kent street, Newark, New Jersey, manufacturing paper boxes; capital, $100,000.

Z. W. Ranck in the West

MIDDLETOWN, Ohio, April 17, 1922.

Editor, PAPER TRADE JOURNAL:

Your Dayton correspondent was misinformed when giving you information to the effect that Z. W. Ranck, the president of our company had been vacationing in California. Mr. Ranck did make a trip through the West, stopping at Denver, Salt Lake City, Spokane, Seattle, San Francisco and Los Angeles, but the object of the trip was to make a general survey of business conditions in the territory served by these cities. From the fact that this entire trip was made in three weeks, you can imagine that it was not a vacation or a pleasure trip.

Mr. Ranck was very much impressed with the West. In his opinion it runs the Miami Valley a close second as a place to live and as a business proposition, it undoubtedly has a great future.

The outlook for the particular product which we make, was so encouraging that Mr. Ranck opened selling offices at Seattle, San Francisco and Los Angeles in charge of the following district managers: W. J. Trenholm, Seattle; Earl H. Jones, San Francisco; H. D. Tyler, Los Angeles. An adequate stock of our standard products will be carried in each city, so as to give the Pacific Coast jobbers the same service that the jobbers in Boston, New York City, Philadelphia, Baltimore, St. Louis and Kansas City now enjoy.

We maintain selling offices in these cities in charge of competent men and also have warehouse stocks so as to be able to make prompt deliveries to our customers. We also have a sales office in Chicago but do not maintain a warehouse as club cars are shipped to Chicago every week or so.

These selling offices are a more recent development, prompted by the changed conditions since the armistice. With jobber's stocks very low and purposely kept low, in view of the unsettled market conditions, warehouse stocks will enable the jobber to buy as he needs the paper, obtain prompt delivery and because the necessity of carrying large stocks in his own warehouse, is eliminated, his cost of doing business is substantially reduced.

The jobbers are taking advantage of this arrangement more and more, and our plan is working out to the mutual benefit of everyone concerned.

Yours truly,
THE CRYSTAL PAPER CO.
M. H. HAND.

Bids and Awards for Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 19, 1922.—The purchasing officer of the Government Printing Office will receive the following paper bids on April 24:

4,375 lbs. (50 reams) 21 x 32½—87½ No. 48, Buff Commercial Ledger Paper;

145,000 lbs. (2,500 reams) 38 x 48—58 to 500 sheets, Opaque Printing Paper;

2,475 lbs. (50 reams) 24 x 32—49½ No. 24, Light Blue Writing Paper.

The Purchasing Officer of the Government Printing Office has received the following bids on 4,800 lbs. of tea cover paper, 20 x 25" 48 lbs.; Dobler & Mudge, $.092 per pound; R. P. Andrews Paper Company, $.125; Whitaker Paper Company, $.0825; Wilkinson Brothers & Company, $.0974; Old Dominion Paper Company, $.096; D. L. Ward Company, $.13; Graham Paper Company, $.0972; Thos. Barrett & Son, $.0999; Reese & Reese, $.0944; Dill & Collins Company, $.1075, and Knowlton Brothers, $.0948.

The Purchasing Officer of the Government Printing Office has received the following bids:

36,000 lbs. binders' board No. 2, 25 x 30—No. 30: Republic Bag and Paper Company, $72.72 per ton; Mathers-Lamm Paper Company, $50.95; Whitaker Paper Company, $66.30; Philip Rudolph & Son., Inc., $59.00; Denison Pratt Paper Company, $68.00; Dobler & Mudge, $55.00; C. L. LaBoiteaux Company, $79.96; George W. Millar & Co., Inc., $68.25; Kerr Paper Mills Company, $60.00; Muir Board Company, Inc., $53.00; and Westport Paper Company, $58.00.

72,000 lbs. white bond paper, 21 x 32—36, No. 20: Worthy Paper Company Association, $.19 per pound; Maurice O'Meara Company, $.1625; The Whitaker Paper Company, $.1347; Old Dominion Paper Company, $.1399; R. P. Andrews Paper Company, $.1173; Dobler & Mudge, $14; Aetna Paper Company, $.1088.

8,100 lbs. white S. & S. C. Printing paper, 32—48, No. 81: Dobler & Mudge, 15 cents per pound; The Whitaker Paper Company, $.1197; Old Dominion Paper Company, $.1124; and Dill & Collins Company, $.1135.

Business Somewhat Better in Boston

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., April 19, 1922.—Business in practically all branches of the paper trade took a decided turn for the better here this week. In fact, the percentage of actual sales, according to many of the store managers, was the best thus far this year. With the volume in sales, is noticed, to a slight degree, a slight increase in the size of order. Leaders in this territory are quite satisfied over the past week's tendency to improve. Prices stiffened a bit in many cases.

Advertising in increased volume was ushered in with spring business here thus creating a brisk demand for various qualities, especially from a number of houses entering the catalog business. Printers are getting results from their direct-by-mail advertising and the demand for fine grades from this source has added to the generally better conditions.

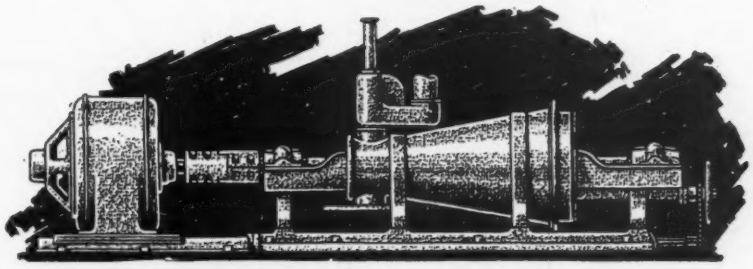
Board dealers find that conditions are improving somewhat in various industrial centers, resulting in increased business for them. Rags and paper stock are not moving in comparison with the other stock but one of the veteran dealers stated that for the first time in many months "healthy-sized" orders were coming in and many inquiries on prices, etc., were being made.

Conditions Improving in Chicago

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., April 17, 1922.—There have recently been some very conclusive signs of improving conditions in the local trend of trade. Some mills are behind in filling their orders, according to local representatives. The demand is said to be stiffening a little, and while buying is not being done in a spontaneous manner and is still being governed a great deal by immediate prospects of consumption, it is said that buyers are placing paper orders in a freer and easier manner.

The market, considered as a whole, remains spotty, however. Paper merchants in Chicago declare that the trend of sales is just about as uneven as it ever has been. They will enjoy a very good demand for a day or two, and then suddenly that demand will cease and they will not be able to get an order at all for a day or so. This condition does not alone seem to be governed by periodical spurts covering days, but is said by some members of the local trade to cover weeks, at times, when business could be called good, and then weeks when this definition would not fit at all.



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PAPER MAKERS TWINE
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FINE AND COARSE POLISHED TWINES
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AMERICAN MANUFACTURING CO.

NOBLE AND WEST STREETS, BROOKLYN, NEW YORK CITY

CORDAGE

New York Trade Jottings

The C. L. La Boiteaux Company, boxboard merchant, is moving its offices from 200 Fifth avenue to its new quarters in the Borden Building, 350 Madison avenue, New York.

* * *

W. G. MacNaughton, secretary of the Technical Association of the Pulp and Paper Industry returned to New York Tuesday, April 18, after a five-day business trip to Montreal, Canada.

* * *

W. J. Raybold, Vice-President and Treasurer of the B. D. Rising Paper Company and President of the American Paper and Pulp Association, visited New York, Wednesday, to discuss aftermaths of the convention.

* * *

The New York Gummed Paper Company, Manhattan, has incorporated in New York with capital stock of $5,000. The incorporators are E. D. and I. W. Ehrler, and A. F. Mayo, the attorney is M. F. Miller, 350 Fulton street.

* * *

The Fernstrom Paper Company, Manhattan has incorporated under New York laws with capital stock of $10,000. The incorporators are C. E. and M. Fernstrom and J. Liebig. The attorney is J. W. Robertson, 2 Rector street.

* * *

Dr. Hugh P. Baker, Secretary of the American Paper and Pulp Association and O. M. Porter, Secretary of the Woodlands Section, will attend the annual meeting of the Society of American Foresters to be held at Syracuse the latter part of this week.

* * *

The Weis Fiber Container Corporation is investigating in New York and other cities of the East for a suitable site for its new plant. It will be recalled that their factory at Monroe, Mich., was recently destroyed in a fire entailing an approximate loss of one million dollars. H. Serkowich, the corporation's Eastern representative, 724 Woolworth Building, expressed the hope that an announcement of resumption of operations would be forthcoming in the near future.

* * *

The Washington Pulp and Paper Corporation has turned over an issue of $850,000 first mortgage 6½ per cent sinking fund 20-year bonds to Blyth, Witter & Co., who are offering them at a price of 97¼ to yield 6.75 per cent. The net earnings of the corporation applicable to bond interest for the year 1921 from their pulp and paper mill of Fort Angeles, Wash., totaled $478,912, the equivalent of over five times the bond interest charges. This figure includes reservations for Federal taxes.

* * *

The Republic Bag and Paper Company has recently negotiated for the lease of a five-story modern concrete building containing 100,000 square feet of floor space with water front, from Charles C. Miller. The edifice, known as the Miller Building, is located at Greenpoint Avenue and Newtown Creek, and the transaction was made through Robert E. Patterson, factory broker, of 837 Manhattan Avenue, Brooklyn. Four hundred thousand dollars was mentioned as the approximate aggregate rental.

* * *

Twenty thousand dollars was the estimated damage to the stock of the Manhattan Card and Paper Company when two successive fires within fourteen hours in the building they occupy at 25 Beekman street. The first conflagration occurred about 5:30 o'clock on April 12, and although the blaze had apparently been extinguished, it is surmised that some of the bales of paper and cardboard smouldered throughout the night and burst into flames early the next morning. The cause of the first fire is not definitely known.

The Smith-Millie Paper Company has recently been incorporated under the laws of New York with a capitalization of $10,000. The incorporators are the following: W. J. Kuntz, R. F. Schiller, and E. L. Schlaer. The attorney is T. J. Brady, 31 Nassau street, New York City.

* * *

Frank W. Clark, President of the Gulf Pulp and Paper Company, of Clark City, Quebec, arrived in New York April 13 on the new White Star liner *Homeric*. After a trip through the Scandinavian countries Mr. Clark is optimistic regarding the paper and pulp industry in the near future.

* * *

Immediately following the New York convention, B. T. McBain, Director of Manufacturing for the Nekoosa-Edwards Paper Company, Port Edwards, Wis., visited Three Rivers and Grande Mere, Quebec, to see the new machines of the International Paper Company and the Laurentide Company. Mr. McBain was resident manager at West Lynn, Ore., and supervised the installation of a sectional electric drive machine there for the Crown-Willamette Paper Company.

* * *

O. M. Porter, Secretary of the Woodlands Section of the American Paper and Pulp Association, gave a talk Tuesday night before the military Order of the World War, a national society of officers who served in the war. Mr. Porter spoke on the work of foresters in France during the war. In charge of getting out fuel for the army in France himself, Mr. Porter had an unusual opportunity to study the situation first hand. He enlisted a private and returned Captain in the Engineer Corps.

* * *

In spite of the strike with which it had to contend, and the generally poor trade conditions, International Paper common is now understood to be earning bond interest. This, in view of the annual report just published for 1921, showing a deficit after bond interest of $7,442,900, is a marked sign of strength. International Paper common earned the equivalent of $53 a share in 1920. The company has recently purchased a coal mine in New Brunswick and has laid in ample supplies of the fuel to anticipate a possible coal strike. The opening of a new mill at Three Rivers, Quebec, has also been announced.

Flood Causes $30,000 Loss on Pulpwood

SARANAC LAKE, N. Y., April 12, 1922.—Woodsmen were busy today salvaging a great amount of pulpwood, which was swept down the Ausable River when the boom holding 40,000 cords belonging to the J. & J. Rogers Company at Ausable Forks was blocked late last night.

Four thousand cords were carried to the south of the river at Lake Champlain, where booms prevented a total loss of the wood. The company estimated the flood, which reached the highest level in many years, would cost them $30,000, as it will be necessary to haul the wood back, a distance of eighteen miles, by motor truck.

All of the streams throughout the Adirondacks are at flood pitch and many roads have been inundated because of recent heavy rains.

For Legislation on Associations

WASHINGTON, D. C., April 19.—The Edge resolution for the creation of a joint congressional committee to frame legislation defining the legitimate activities of trade associations was reported favorably by the Senate Commerce Committee. The resolution then was referred to the Committee on Audit and Control of Contingent Expenses. The latter committee is expected to report the resolution in order that it may be adopted and the committee may get to work as soon as possible. Secretary of Commerce Hoover has urged prompt action on the resolution by the Commerce Committee.

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CHEMICAL PULPS

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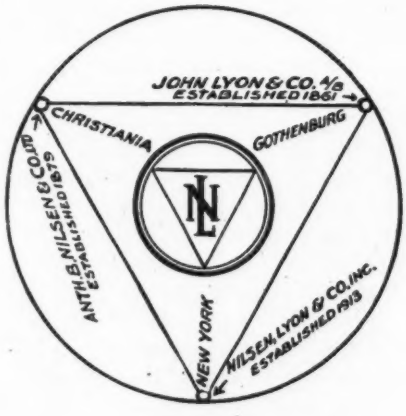

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2

Editorial

Vol. LXXIV New York, April 20, 1922 No. 16
FIFTIETH YEAR

Get the Tariff Matter Settled

Chairman McCumber of the Senate Finance Committee, which last week reported the tariff bill, the changes in which from the House bill, so far as paper and pulp are concerned, were reported in the PAPER TRADE JOURNAL last week, is intensively enthusiastic regarding the work of his committee in framing this measure. After stating that this tariff bill, when approved by both the Senate and the House, will be the first National tariff bill in our history, the Senator goes on to say that "throughout the preparation of this measure, the Senate Finance Committee has endeavored to lay the foundation for an era of nation-wide prosperity. Increased prosperity is but the expression of increased production. But there can be no increase of production without a prosperous consuming public. The American market is the one great important market for the products of the South and West, as well as the East and North. The American people consume more than 90 per cent of everything they produce. Each producer, therefore, most vitally is interested in not only maintaining but, in every possible way, increasing the purchasing power of every individual consumer.

"With this thought in mind, the public will recognize this bill as a consumer's tariff. Its object is to restore the buying power of the consumer. After careful consideration and investigation of conditions here and abroad, the Senate Finance Committee is convinced that the first step in increasing the individual's ability to buy is to provide work and markets for the worker's and farmer's products.

"The Senate Finance Committee has given every opportunity to all representatives of American industries, of importers, of labor and agriculture, to present facts relating to their businesses and the conditions confronting them today. As a result of this general economic survey, supported by Government reports and investigations, a tariff bill has been written which, when accompanied by a reasonable reduction in transportation and production costs, will bring prosperity to the whole country by providing markets for producers and work for consumers.

"We cannot import our prosperity. We must make it in the United States. But there can be no prosperity unless and until the American producer and consumer are protected against unfair, discriminatory competition of foreign countries. It is false and short-sighted economy seriously to reduce the output of our factories and thereby reduce the purchasing power of our own people, simply because we can purchase foreign-made articles cheaper. Our people first must earn money before they can spend it either at home or abroad.

"During the first three months of this year there were 7,517 business failures in the United States against 4,872 in the same period last year and 1,627 in 1920. These failures, in a large measure, have been due to the diminishing purchasing ability of the average American consumer.

"The fundamental principle of tariff legislation, therefore, at this time is to provide work, to increase production and restore the consumer's buying power.

"While the present unsettled conditions everywhere existing render the work of those engaged in making a tariff bill extremely difficult it, however, must be borne in mind that of all times in the history of our country this is the time when a protective tariff is most needed by the American people.

"We have written this tariff on the basis of both protection and revenue. We have made no rate so high that it will shut off reasonable foreign competition in our American markets nor so low that the American manufacturer, with reasonable economy of production, cannot hold his full share of the American market. We have tried to protect the American producer, believing that he is entitled to the first consideration. We have tried to maintain the standard of labor wage in the United States and the higher standards of living in this country, believing this policy is for the very best interest of both the producer and consumer. At the same time, we have tried carefully to guard the interests of the great consuming public.

"We have given the agricultural interests of the country a better standard of protection than ever has been given in any previous tariff bill. Duties under the Senate amendment will be considerably less than those proposed by the House. We are certain that we have placed no duties above a necessary protective basis. But as values undoubtedly will change very much in the next two or three years, the Committee has provided a method by which, within certain prescribed limits, the President either may lower or raise any ad valorem rate to bring the article into fair competitive conditions in our market. This will safeguard the consumer against any injustice which may result from too high a rate and the producer from any unfairness or destructive competition which may result from too low a rate. We have provided the means of assuring the maintenance of our industries, and still preserving reasonable and healthy competition.

"The actuary of the Treasury Department now is at work to advise the Committee as to the amount of revenue which will be raised by this bill. While the report is not complete, I think it is safe to assume that it will bring in not less than $350,000,000 in much needed revenue to the Government.

"By reporting the bill on the basis of foreign valuation, the Committee wishes to give the Senate a thorough opportunity of debating both the American and foreign valuation principles. No such chaotic conditions in world finance, commerce and industry ever have challenged the American public as those we are compelled to meet today. We have reached in this country the highest point of production cost. In some sections of the world, the cost of production is far below that of pre-war times. The gulf which separates the American cost and the foreign cost, especially in those countries with depreciated paper currencies, is deeper and wider than ever before. In some other countries, on account of higher labor costs, there is a lessened difference. So, too, the American cost of production and sale in wholesale quantities rapidly is undergoing changes. This equally is true in foreign countries. With these conditions of rapid and varying changes in values, the Senate Finance Committee found it most difficult to adopt and apply the American valuation at this time.

"Nevertheless, while the Committee has based the rates on foreign

valuation it has, at the same time, the latest and most accurate data obtainable for converting ad valorem duties, based upon foreign valuation, into its equivalent, based upon the selling price of the imported article in the United States. In case there is any change in policy in the Senate or in conference, there will be little difficulty in changing rates to correspond with the policy adopted. In other words, the basis of valuation still is open for discussion in the Senate and in conference with the House.

"For many months there have been attempts to defeat tariff legislation at this session of Congress. I shall not go at this time into details of this opposition, but I wish to assure the country that an all-American tariff bill will be passed before adjournment. Whatever differences there may be between the Senate and House bills will be as carefully examined in conference as the schedules have been studied by our Committee during the past six months."

While this bill is not satisfactory to all the interests in the paper and pulp industry the trade as a whole is interested in having the tariff matter settled at the earliest moment, so that the progress to normalcy may be accelerated as quickly as possible.

A Great Paper Week

Thursday night of last week saw the close of the greatest convention ever held in the history of the paper industry. When nearly a thousand men assemble under the roof of a banquet hall in the name of a worthy common cause—the furtherance of one of the few really essential industries—their aims and their accomplishments can be nothing short of great!

They did not come to celebrate the culmination of a year of prosperity. Few had actually thrived since the last convention at the Waldorf—some had broken even—and a disheartening number had put their all into the work of rehabilitating a business it had taken years to establish, and their balance sheets showed a deficit!

Those are the facts. Yet in spite of a year replete with the severest trials, scarcely a vestige of this could be detected during convention week. There was a morale that had to be kept up. The past was gone, dead, buried. No drastic metamorphosis might occur in the immediate future, true—but there was one thing certain, it couldn't be any worse. If there were no sounder ground upon which to base a conclusion, the law of averages would indicate that a break is not only due but long overdue. An honest roulette wheel will not always stop on the black.

But with a morale such as was exhibited last week, the captains of the paper industry will not be compelled to await the wiles of fortune for an answer to the question that lurked in their minds. From every angle—practical and theoretical—it was shown and proven that the economic war is over. There remains but to clear away the barbed-wire entanglements of business depression and replant the seeds of prosperity in war ravaged fields. Slowly and laboriously the economic entity of the United States is freeing itself from the choking strangle-hold of war and post-war conditions. Wildly inflated currencies of foreign nations are becoming more stabilized. The panic of Bolshevism approaches extinction and commodity prices as well as labor prices are working back to a sane standard.

The luncheons and banquets are over; the impassioned bursts of oratory have passed into inanimate records in black and white, but something was carried away from the forty-fifth annual convention of the American Paper and Pulp Association in the hearts of the men who attended it. A moral courage was given birth which was not before recognized—a new feeling instilled in the minds of many hundred men who have suffered the same ordeals for a common cause. In a word, out of a flighty, transitory week of comparing, thinking and co-operating, something permanent and lasting has been derived—an indefatigable morale.

Paper Industry Growing in South

The Nashville *Banner* in a recent issue printed the following:

The future of the paper industry in the South and the tremendous strides which have been made in recent years in the establishment of such plants in this section is the basis for a recent article by Roger W. Babson, noted business expert, who refers to the reforestation of cut-over lands to provide pulp for the industry.

The people of this section, especially Nashville who who are interested in the big paper manufacturing plant of the Nashville Pulp and Paper Company established at Old Hickory, will be greatly interested in the facts as given by Mr. Babson, who declared that eventually the paper making industry will be centered in the Southern States.

"Cotton mills in the South are making money," says Mr. Babson, "because they are in a natural location, the same applies with even more force to pulp and paper making, and the day is coming when the entire industry, representing an investment of hundreds of millions of dollars, will be located in the Southern States."

Mr. Babson is not making these statements with his eyes shut and writing from an office a thousand miles from the scene. He makes them after an inspection of the South. When the statement was made, he had just completed a four-days' inspection of the holdings of the Great Southern Lumber Company at Bogalusa, Ala., where the company is planning against the time when its forest reserves will be exhausted. He says that nature has provided her own answer to the cut-over land problems, and this is an advantage over the Northern pulp centres. He points out that a loblolly pine will grow to sufficient size for pulp-making in twelve to fifteen years, while it requires twenty years to produce a pulp tree in the North. The Nashville plant is logically located and its growth and development seem assured by reason of its proximity to the sources of supply.

Admit Beaver Board Companies to Curb

The New York Curb Market's Committee on Listings has admitted to the trading list the certificates of deposit issued under the plan and agreement for the reorganization of the Beaver Board Companies. The new 8 per cent. collateral trust notes to be issued under the plan will also be listed. The old securities have been stricken from the list.

The action was taken because of the small outstanding number of undeposited 8 per cent. gold notes of the Beaver Board Companies.

Certificates of deposit issued by the Central Union Trust Company will constitute good deliveries. Outstanding 8 per cent. gold notes as well as certificates of deposit issued by any of the other depositaries under the plan and agreement may be exchanged at the Central Union Trust Company of New York for certificates of deposit of that company.

International Paper Co. Dividend

The Board of Directors of the International Paper Company declared a regular quarterly dividend of one and one-half per cent. April 15, 1922, to preferred stockholders of record at the close of business April 7th, 1922.

1864 1922

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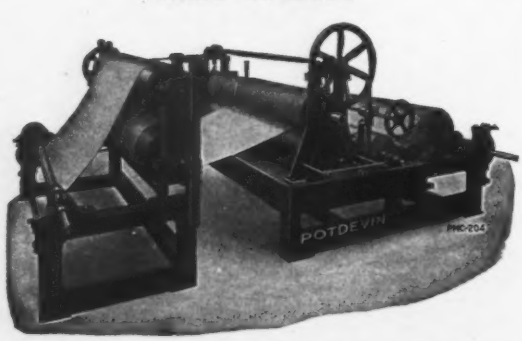

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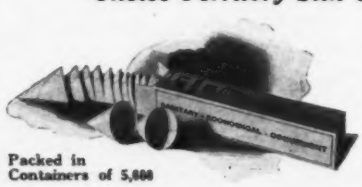

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AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G.MacNAUGHTON, Secretary

PRODUCING BLEACH LIQUOR WITH LIQUID CHLORINE IN THE PULP OR PAPER MILL*

By S. W. Jacobs and H. P. Wells on Technical Staff of Electric Bleaching Gas Company, New York, N. Y.

Most of the early work in the pulp and paper industry looking toward the use of Liquid Chlorine was done, not so much with the idea of economy, but with the hope of improving the general practice of bleach making and an unsightly portion of the mill.

It was not until the large production of Liquid Chlorine for war purposes came into being that there was any hope of direct economy due to Liquid Chlorine supplanting dry bleach.

The laboratory work was initiated in the very early days of the Liquid Chlorine industry when the Electro Bleaching Gas Company installed a small beater in which all sorts of paper-making fiber were worked over and bleached. It soon became evident that rags responded very quickly to an acid bleach made by merely dissolving the chlorine in water and running the solution to the beater. In order to make this solution it is necessary to have some control apparatus.

The first of these were made by this company, and installed at the Keystone Paper Company at Upper Darby, Pa., and the Kalamazoo Vegetable Parchment Company at Kalamazoo, Mich., in 1916. Nothing more had been done along these lines until early in 1919 and during this interval the Electro Bleaching Gas Company had disposed of its apparatus business to the Wallace & Tiernan Company, so from that time on the control equipment for producing an acid bleach was made and installed by that company. A great many such installations have been made and the resulting economies are many. This phase of the application of Liquid Chlorine to the paper industry was discussed a year ago before this organization.

The purpose of this paper is to discuss the adaptation of Liquid Chlorine to the bleaching of those fibers which do not respond to an acid bleach or where, because of the large quantities of chlorine necessary, it would be impractical to carry it in solution in water.

Our work soon narrowed itself to using a lime base because of its cheapness, notwithstanding the fact that under certain circumstances a soda base shows some advantages and is actually employed in some mills.

Our first practical installation using a lime base was at the plant of the Carso Paper Company, Dansville, N. Y. This was installed early in 1917, but owing to the pressure of war work, was not on a basis satisfactory to either the user or to ourselves until the beginning of 1919.

*Read at the Annual Convention of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria, New York, April 12, 1922.

After remodeling this installation to our satisfaction, we undertook to standardize our practice and we now present the following description and layout of a typical Liquid Chlorine bleach-making plant.

The bleaching agent we produce is calcium hypochlorite solution, which of course is of the same chemical composition as the solution made from dry bleach powder, but does differ markedly in some of its physical qualities.

The chemicals used are Liquid Chlorine as the active agent and a high calcium lime as the base. Either quick lime or hydrated lime may be utilized; the former is probably less expensive but the latter more convenient, as quick lime must be slaked and cooled before it is suitable for use. Where quick lime is employed, one pound of lime is required per pound of Liquid Chlorine absorbed. Where hydrated lime is used, one and one-quarter pounds of lime are necessary per pound of chlorine absorbed, the accuracy of these figures depending upon the purity of the lime in terms of calcium oxide. The difference in proportion between the lump and hydrated lime is accounted for by the moisture content in the hydrated product. In either case the quantity of lime used provides a sufficient excess to insure an alkaline liquor as a result.

The accompanying sketch (Fig. No. 1) will serve to show the procedure we take. This sketch indicates what we have arbitrarily called a circulation tank, a sludge tank, a centrifugal pump, an absorption tower and a storage tank. In the circulation tank we place a measured quantity of lime and water which is kept in continual agitation. This resultant solution is pumped to the top of the absorption tower which is simply constructed of stoneware tower sections mounted on a special concrete base so designed that a liquid seal is formed to prevent the escape of any free gas during operation. The tower is packed with small cylindrical stoneware rings to give a large absorption surface. After the milk of lime is in good circulation, the chlorine gas is allowed to flow through an ordinary iron pipe to the base of the tower, where the counter currents of gas and lime solution provide a condition suitable for the chemical combination of both ingredients. From the base of the tower, the solution flows back into the original tank and the circulation continues until the solution is built to any desired strength up to fifty grams per litre, after which agitation is stopped and the liquor allowed to settle; the clear solution being drawn off through a decanting pipe to the storage tank where it is ready for use. During

the entire process both lime and chlorine flow at a uniform rate; the rate of flow of chlorine being at the control of the operator which may be from a few pounds per hour to fifteen hundred pounds per hour. It has been the custom to measure the gas in units of 100, 150 or 2,000 pounds, or any multiple thereof which corresponds to the capacity of our containers, but where tank cars are in use the gas is either measured through a flow meter or the strength of the liquor is determined by titration.

The small amount of sludge remaining after each batch is allowed to accumulate until the quantity warrants washing it, when it is pumped into the sludge tank and agitated with additional quantities of water. Here the sludge is washed twice and the clear liquor run into the circulation tank for use as "make up" liquor for a fresh batch of bleach. At the present time and especially where old dry bleach plants are converted to the Liquid Chlorine process, the sludge washing tank has been entirely eliminated, as we have found that this treatment can usually be carried out in the circulation tank.

Our next problem was to build a bleach plant which should be as nearly ideal as we knew how to build it. This could best be done at a new mill which had no equipment to be salvaged or reworked.

The opportunity presented itself at the plant of the Lincoln Paper Mills Company, Ltd., Merritton, Ontario, Canada, and the work was done in conjunction with their consulting chemist, W. P. Cohoe, and their superintendent, G. J. Armbruster, in the winter of 1919-1920.

The plant was designed to make bleach liquor for twenty tons of sulphite pulp per 24 hours, but in recent months this plant has bleached as much as 30 tons and could handle as much as 50 tons per day, except for other limiting features in the mill.

The equipment is installed in a concrete and steel building, 25x73 feet on the ground x 35 feet in height with a monitor on one end of the roof to house the top of the absorption tower. The roof is a concrete slab. The building conforms to the type and structure of the other mill buildings. It is served by two railroad

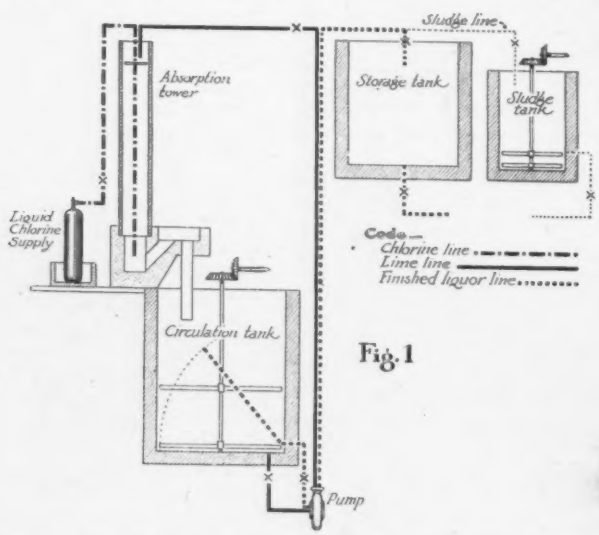


Fig. 1

sidings. This building has no general floor levels above the ground, but platforms and stairways were constructed so as to give easy access to tanks and apparatus above ground level.

A lime storage building adjoins the main building at the end where the hydrating tank is located and has a storage capacity of 75 tons.

A list of equipment follows: One round steel hydrating tank of 2,300 gallons capacity with agitator and hydrating basket

Three round reinforced concrete circulating tanks of 13,000 gallons capacity with agitators.

Three square reinforced concrete tanks for storage of finished liquor, each with capacity of 8,000 gallons.

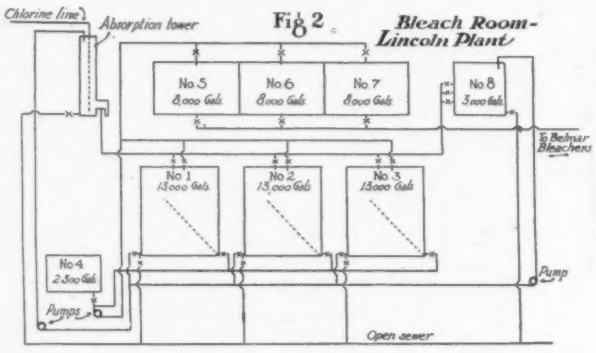


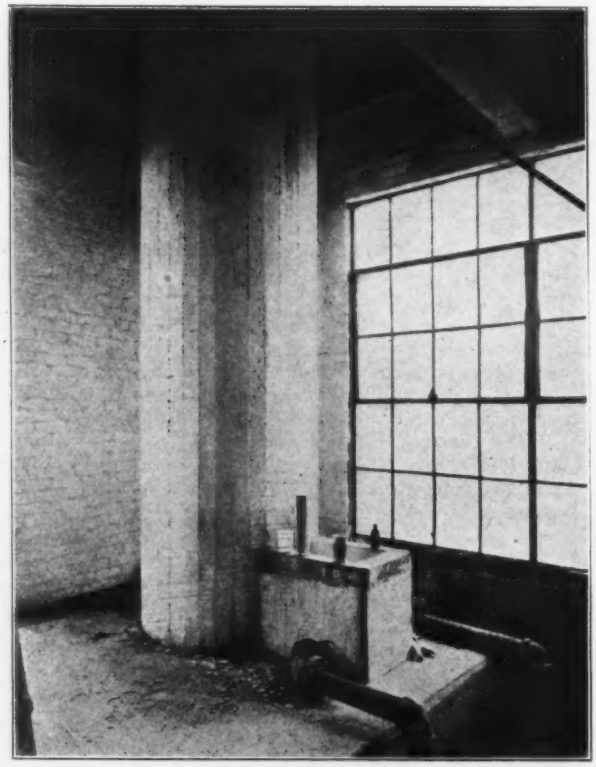
Fig. 2

One reinforced concrete absorption tower packed with stoneware rings.

One Liquid Chlorine evaporator for use with tank cars.

One reinforced concrete sludge washing tank of 3,000 gallons capacity with agitator.

One platform scale for weighing lime.



Absorption Tower

Three 2½-inch centrifugal pumps with the necessary shafting and piping.

From April 15 to 28, 1921, a test was run at this plant, the purpose of which was to determine under operating conditions the efficiency with which Liquid Chlorine could be absorbed and the

resulting hypochlorite liquor handled up to the point of entering the Bellmers. This test we now report in detail.

Operation of the Bleach Plant

The general operating procedure is exactly that followed under the typical layout previously described. Burned lime is slaked with fresh water in the hydrating tank No. 4 (see Fig. No. 2), and the resulting milk is pumped into one of the circulating tanks 1, 2 or 3, where after cooling, it is diluted with water, or with water and wash liquor, to a volume of from ten to 12 thousand gallons. The diluted batch of milk of lime is then circulated through the absorption tower and back into the same tank; chlorine being absorbed at the rate of from 400 to 500 pounds per hour, the latter being drawn from the tank car through an evaporator which converts the liquid into a gas, in which form it is absorbed.

When the available chlorine strength reaches 35 to 40 grams per litre, depending upon the amount of excess lime present, the chlorine supply is shut off, the circulation stopped and the liquor allowed to settle.

The clear liquor is pumped into one of the storage tanks 5, 6 or 7, and is ready for use in the Bellmers. The sludge is pumped into the sludge washing tank No. 8, where it is mixed with fresh water, agitated and then allowed to settle, the clear liquor being run into a circulation tank and the remaining sludge rewashed.

Conducting the Test

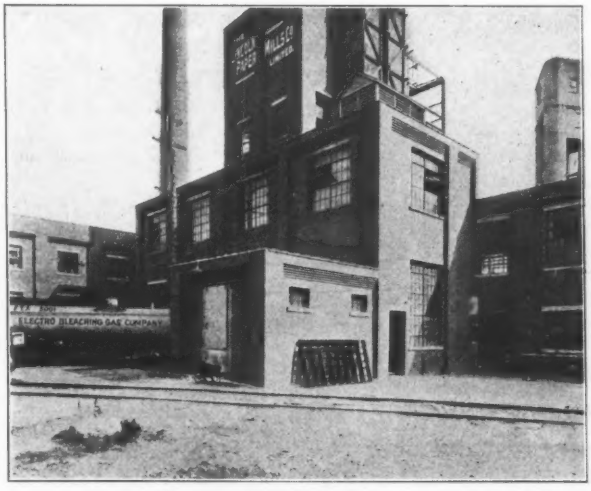
The entire contents of a tank car of Liquid Chlorine were used in making the efficiency test, this amount—approximately 30,000 pounds—being absorbed in making up ten batches of bleach liquor.

In calculating the efficiency of absorption, the actual weight of chlorine charged into the system was determined by weighing the tank car before and after the test on the same track scales.

The weight of chlorine actually absorbed in the system was measured in the following manner:

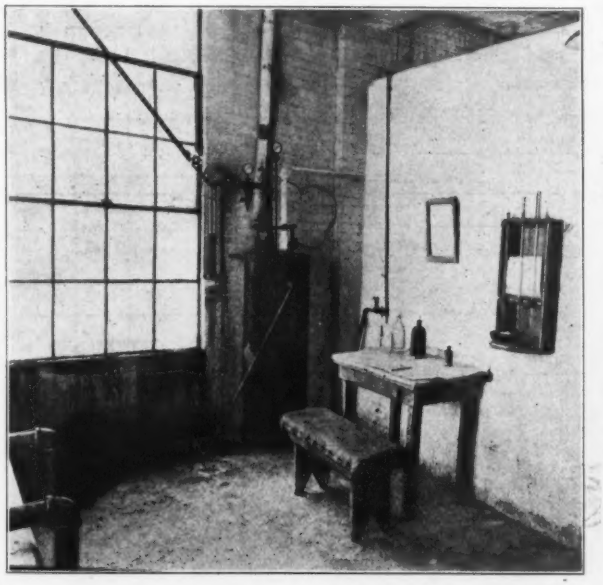
At the point where the diluted milk of lime in the circulating tank was ready for circulation through the absorption tower, the volume was measured, and an average sample assayed for available chlorine, fixed chloride and for chlorine as chlorate. After the batch had been made and the gas supply shut off, the volume was again measured, and an average sample assayed as before. From this data it was possible to calculate the weight of chlorine absorbed in making the batch and to determine the percentage absorbed in active form. The total weight of chlorine absorbed during the test was arrived at by adding together the net weights for each of the ten batches of bleach liquor.

The weight of chlorine lost in sending the residual sludges to the sewer was measured as follows:

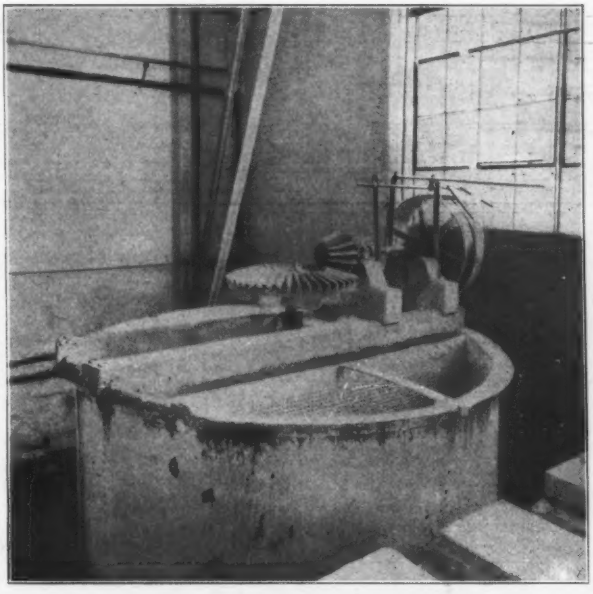


Bleach House

When a batch of sludge was ready to send to the sewer, its volume was measured and an average sample assayed for available chlorine. From this data it was possible to calculate the weight of available chlorine sent to the sewer for this batch. The total weight lost in this manner during the test was arrived at by adding together the weights for each of eight batches sent to the sewer.



Evaporator Showing Chlorine Meter



Hydrating Tank

Standard analytical methods were employed throughout the test, viz.:

(a) *Available Chlorine*—Titration with sodium arsenite solution with iodized starch paper as external indicator.

(b) *Chlorine as Chloride*—After the available chlorine has been reduced to chloride by the arsenite solution, the total chloride is determined by standard silver nitrate solution according to the Volhard method.

(c) *Chlorine as Chlorate*—After the available chlorine has been neutralized by arsenite solution, a weighed quantity of ferrous iron is brought into reaction with the chlorate, the excess iron being measured by standard permaganate solution.

Results of Efficiency Test

1. *Efficiency of absorption.*

The gross and tare weights of tank car F. T. X. 2009 were as follows, the weight being read to the nearest hundred.

Gross Wt. (12-29-20) ..... 75,800 ± 50 lbs.
Niagara Jc. R. R.
Tare Wt. (5-3-21) ..... 45,800 ± 50 lbs.
Niagara Jc. R. R.

Net Wt. ..... 30,000 ± 100 lbs.

Therefore the actual weight of chlorine charged into the system lay between the limits 29,900 and 30,100 lbs.

* * *

As shown on the attached data sheet No. 1—
Total weight of chlorine in finished liquors..... 32,642 lbs.
Total weight of chlorine initially in liquors..... 2,602 lbs.

Net weight ..... 30,040 lbs.

Therefore the net weight of chlorine actually absorbed in the system was 30,040 pounds.

Thus all the chlorine charged is accounted for and the efficiency of absorption is practically 100 per cent.

2. *Percentage of Availability of the Absorbed Chlorine.*

As shown on the attached data sheet No. 1—
Total weight of available chlorine in finished liquors.. 32,317 lbs.
Total weight of available chlorine initially in liquors. 2,527 lbs.

Net weight ..... 29,790 lbs.

Therefore out of a total of 30,040 pounds absorbed, 29,790 was in the active or available form. This calculates to 99.17 per cent.

To cite a typical batch, take run No. 5 of April 21st, where the finished liquor tested 38.55 g. p. l. available chlorine and 38.87 total chlorine. This particular batch calculates to the same percentage of availability as the average, namely 99.17 per cent.

3. *Chlorate Formation.*

Any fear felt prior to the test that chlorate formed in appreciable quantities, was proven to be groundless.

As shown in the chlorate table on attached data sheet No. 2, it was found that in several instances the finished liquors contained no chlorate at all, while others showed a trace. The maximum value found was 1.31 lbs. of chlorine as chlorate out of 1,000 pounds of chlorine absorbed in the system or 0..131 per cent.

A study of the "chlorate reaction" indicates that of 6 pounds of chlorine entering into this reaction, 5 pounds form fixed chloride, while 1 pound enters as a component of the chlorate salt, viz.:

$$6\ Ca\ (OH)_2 + 12\ CL = 5\ CaCl_2 + Ca\ (ClO_3)_2 + 6\ H_2O.$$

Since it was shown by actual test that but 0.83 per cent of the absorbed chlorine was present as fixed chloride, this at once places a limiting value of 0.17 per cent on the weight of chlorine as

RECORD SHEET OF EFFICIENCY TEST - - - LINCOLN PLANT APRIL 15- 28, 1921.

Run No.	Date	Circ. Tank No.	START OF RUN											END OF RUN								
			Depth Down	Liquor Column	Net Area Sq. Ft.	Allowance cu. ft. St.	Allowance cu. ft. Grout	Net Vol. Cu. Ft.	Active Chlorine G.P.L	Active Chlorine Lbs. Cu.ft.	Active Chlorine Total Lbs.	Total Chlorine G.P.L	Total Chlorine Lbs. Cu.ft.	Total Chlorine Total Lbs.	Depth Down	Liquor Column	Net Vol Cu.Ft.	Active Chlorine G.P.L	Active Chlorine Lbs. Cu.Ft	Active Chlorine Tota Lbs.	Total Chlorine G.P.L.	Total Chlorine Lbs. Cu.Ft.	Total Chlorine Total Lbs.
1	4-15	1	7'1"	7.68'	121	1.00	21	907	10.09	.630	571	10.21	.637	577	4'10"	9.93'	1179	40.40	2.521	2974	41.34	2.580	3043
2	4-18	3	7'6"	7.34'	120.9	1.00	12.5	874	0.19	.012	10	0.19	.012	10	5'11"	8.93'	1066	36.67	2.287	2437	36.72	2.292	2442
3	4-19	2	7'2"	7.73'	120.3	1.00	15.0	914	0.16	.010	9	0.16	.01	9	5'10"	9.06'	1074	36.4	2.271	2439	36.61	2.285	2455
4	4-20	1	52"	10.43'	121	1.00	21	1241	0.33	.020	25	0.33	.020	25	22"	12.93'	1542	36.22	2.260	3485	36.31	2.265	3493
			15" hyd.					241	0.55	.034	8	0.55	.034	8									
5	4-21	2	Cont. 61"	5.08'	120.3	1.00	15	595	0.71	.044	26	0.71	.044	26	36"	11.9'	1415	38.58	2.406	3403	38.87	2.424	3430
6	4-22	1	Cont. 57"	4.75'	121	1.00	21	552	0.78	.049	27	0.78	.049	27	29"	12.34'	1471	36.88	2.302	3385	37.10	2.315	3405
7	4-25	2	22"	13.06'	120.3	1.00	15	1555	9.87	.616	958	10.22	.638	992	8"	14.23'	1696	37.73	2.354	3992	38.10	2.378	4033
8	4-26	1	Cont. 39"	3.25'	121	1.00	21	371	0.84	.052	19	0.84	.052	19	33"	12.01'	1431	37.84	2.361	3379	38.28	2.388	3416
9	4-27	3	6'	9.84'	120.9	1.25	12.5	1178	7.86	.490	576	8.33	.519	611	13.5"	13.72'	1645	35.75	2.231	3670	36.4	2.271	3735
10	4-28	1	6'	8.76'	121	1.00	21	1038	4.6	.287	298	4.6	.287	298	26"	12.59'	1501	33.70	2.103	3153	34.1	2.127	3190
									TOTAL		2527			2602						32317			32642

TANK DIMENSIONS	No. 1 C. T.	No. 2 C.T.	No. 3 C. T.	Hyd. Tank
Diam.	12'-5 13/16"	12'5 3/8"	12'5 5/8"	8'6"
Depth	14'-9 1/8"	14'10 5/8"	14'10 1/8"	5'6"
Area Sq.Ft.	122.4	121.7	122.3	56.7
Deduct 4 Pilasters	1.4	1.4	1.4	
Net area sq. ft.	121	120.3	120.9	56.7
Grout cu.ft.	21	15	12.5	
Stirrer cu.ft.	1.43 @ 12'	1.22 @ 12'	1.22 @12'	

NOTE:- Temperature of circulated liquors did not exceed 30° C.

chlorate. Moreover, since some of the fixed chloride in the finished liquor was unquestionably due to direct loss of oxygen during the circulation of the liquors—and not all due to the "chlorate reaction"—it follows that the chlorine as chlorate must be less than 0.17 per cent of the chlorine absorbed. (See maximum value of 0.131 per cent noted above).

4. *Loss of Available Chlorine in Sludge.*

Since it was found that the necessary space was available, the washing of the various batches of sludge was carried out in the circulation tanks instead of the sludge-washing tank.

It was once more demonstrated that one of the greatest advantages this system has over the system employing dry bleach, lies in the very small loss of available chlorine in the spent sludge. As shown in the sludge table on attached data sheet No. 2, but 92 pounds of available chlorine were lost when the spent sludges were finally sent to the sewer. Since the total weight of available chlorine absorbed during the run was 29,790 pounds, the percentage lost in discharging the sludge was 0.31 per cent.

5. *Lime Requirements.*

As shown in the burned lime table on attached data sheet No. 2, the total weight of burned lime charged into the system during the test was 31,600 pounds which calculates to 1,052 pounds per 1,000 pounds of chlorine absorbed.

6. *Alkalinity of Finished Liquors.*

An empirical method was employed in determining the excess of lime in the finished liquors. Due to the relatively low solubility of lime in water, the results obtained by this method are just a trifle low. As shown in the alkalinity table on data sheet No. 2, it was found that the finished liquors before settling varied in lime content between the limits of 1.75 and 7.74 g. p. 1., excess CaO.

The clear settled liquors contained about one g. p. l. excess CaO in solution, the amount being fairly constant.

May we draw one general conclusion from this test, namely, that close to 99 per cent of the Liquid Chlorine purchased by the paper or pulp mill is actually consumed in the bleaching of the stock and that the combined losses of chlorine from all sources are slightly in excess of 1 per cent. The production of bleach liquor from Liquid Chlorine then is accomplished in a most efficient manner.

This test did not give us any comparison between the cost of making bleach liquor in this way, and the cost of similar liquor made from dry bleach.

Generally speaking, the economies to be effected by the use of Liquid Chlorine are derived from:

First: Saving chlorine usually washed to the sewer with the sludge.

Second: The use of a material that will not decompose during transportation and storage.

Third: Producing a nearly neutral bleach that is extremely active when in contact with the pulp.

As to the waste of chlorine in the sludge where dry is used, each mill must of necessity be its own judge as to its extent, and while awkward to admit openly, it must certainly be recognized. We have visited many mills in the last few years and find that 5 per cent chlorine loss from this source is not uncommon and know of one large mill where 25 per cent was the rule. In comparison with Liquid Chlorine, one needs only to turn to the test at the Lincoln Paper Mill which shows the chlorine lost in sludge to be 0.31 per cent, and this figure is duplicated in many other mills.

There is, of course, no deterioration in the case of Liquid

RECORD SHEET OF EFFICIENCY TEST LINCOLN PLANT — APRIL 15-28, 1921.

SLUDGE DATA

	Sewer Disc. No.	Date	C. Tank No.	Inches Disc.	Liquor Column	Net Area Sq. Ft.	Gross Volume Cu. Ft.	Grout Allowance Cu. Ft.	Net Volume Cu. Ft.	G. P. L. Available Cl.	Lbs. per cu. ft. Available Cl.	Total Lbs. Available Cl.
MACLACHLAN WELLS	1	4-20	2	14	1.17'	120.3	141	15	126	1.84	.115	15
	2	4-21	1	12	1.00'	121	121	21	100	1.26	.079	8
	3	4-22	2	13	1.08'	120.3	130	15	115	0.79	.049	6
	4	4-25	1	11	0.91'	121	110	21	89	1.54	.096	9
	5		1	-	-	-	-	-	-	-	-	4.8
	6	MACHLACHLAN	2	-	-	-	-	-	-	-	-	7.1
	7		3	-	-	-	-	-	-	-	-	27.5
	8		S1Tk.	-	-	-	-	-	-	-	-	14.7

92 Lbs. Av. Cl Loss in Sludge

CHLORATE TABLE FINISHED LIQUOR

10 Fer. Am. Sul. - 24.96 c.c. K Mn O_4

Run No.	Date	Aliquoted Sample	Fer. Am. Sul	C.C. $KMnO_4$	G.P.L. Cl as Chlorate	Chlorate Parts per Million Chlorine	% of Cl as Chlorate	Lbs. Chlorine as Chlorate per Ton of Finished Liquor
1	4-15	5c.c.	1 g.	24.70	.0305	41.34	.073	0.73
3	4-19	5c.c.	1 g.	24.95	None	36.51	None	None
6	4-22	2.5c.c.	1 g.	24.75	.0488	37.10	.131	1.31
8	4-26	2.5c.c.	1 g.	24.75	.0488	38.28	.127	1.27
10	4-28	2.5c.c.	1 g.	24.95	None	34.10	None	None

ALKALINITY FINISHED LIQUOR

Run No.	Date	C.C. in Sample	C.C. $\frac{N}{10}$ Hcl.	G.P.L. Excess CaO
1	4-15	12.5	15.1	3.38
2	4-18	12.5	16.3	3.65
3	4-19	12.5	7.8	1.75
4	4-20	12.5	12.4	2.78
5	4-21	12.5	21.6	4.85
6	4-22	12.5	10.4	2.33
7	4-25	12.5	31.3	7.00
8	4-26	12.5	14.2	3.16
9	4-27	12.5	25.2	5.65
10	4-28	12.5	34.5	7.74

Used empirical method, shaking the sample, aliquoting off 12.5 c.c., destroying active chlorine with neutral hydrogen peroxide, diluting to 250 c.c. and running in $\frac{N}{10}$ HCl until the approx. final fading of phenolphthalein indicator.

BURNED LIME TABLE

Date Charged	Tank No.	Wt. Charged
Before 4-15	#1C.T.	2500
	#2C.T.	2700
	#3C.T.	2700
4-19	#1C.T. Hyd.	3000 800
4-20	#2C.T.	3600
4-21	#1C.T.	3600
4-22	#2C.T.	3600
4-25	#1C.T.	3600
4-26	#3C.T.	2200
4-27	#1C.T.	3300

31,600 Lbs. Lime

105.2 Lbs. Lime per 100 Lbs. Chlorine

2

Chlorine during indefinite storage, while weather conditions greatly affect the chlorine content of dry bleach. Over a period of a year a 33 per cent average chlorine content is all that can be consistently expected of dry bleach at the mill. Incidentally there is hardly a paper mill which has not had many claims to press on this point.

In taking up the third item of a neutral bleach, may we recite an instance at the Paul A. Sorg Paper Company, Middletown, Ohio, which plant was changed over to Liquid Chlorine early in 1920. Their records indicate that while they are using the same amount of chlorine to bleach as they did previous to installing their Liquid Chlorine process, an analysis of the furnishing will show that much harder bleaching pulps are now used than heretofore.

The question of alkalinity has been looked into by Mr. Sorg and Mr. Roe of that company in an experimental way. The experiments were conducted in the following manner:

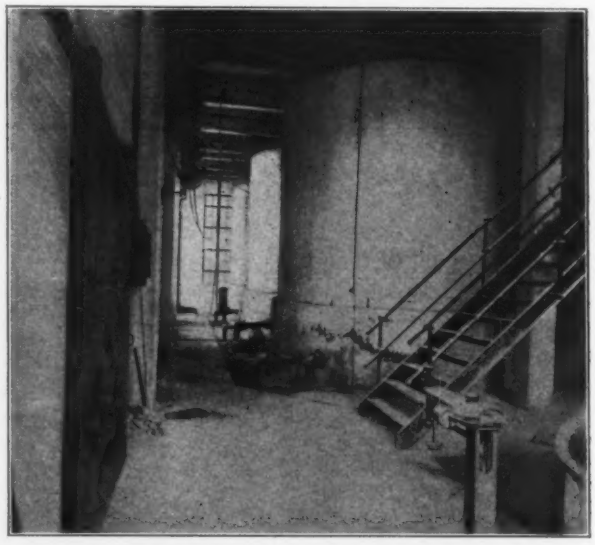
One hundred grams of air-dry pulp were disintegrated and made up with water to a consistency of 6 per cent. To this was added bleach liquor calculated to 25 per cent dry bleach. The bleach was left in contact with the fiber for one hour stirring every five minutes. At the end of an hour a portion of liquor was drawn off and titrated, and the amount of chlorine left in the mass was calculated. In one case the bleach liquor had an alkalinity of 0.3 (alkalinity is expressed as the number of c.c. of N-10 hydrochloric acid required to neutralize 10 c.c. of strong bleach liquor). In the other case, a bleach having an alkalinity of 2.8 was used. In the case of the 0.3 alkalinity, they found that 92 per cent of the total amount of chlorine was consumed and only 80 per cent of the 2.8 alkalinity. The color produced by the bleach of low alkalinity was somewhat better than the other. In both cases the

CIRCULATION TANKS

bleach liquor was filtered before using and the experiments were conducted at room temperature.

The result of this experiment, while it may not appear conclusive, bears out their findings in actual practice that there is an economic advantage in favor of a low alkalinity bleach.

The difficulty of making direct comparisons even at plants that have been changed over from dry bleach to Liquid Chlorine is very great because of the varying quality of the dry bleach, especially in chlorine content, and the uncertain degree of efficiency of operation in a dry bleach plant, because of many factors difficult to control. However, the three items mentioned above go to make up a certain ratio which exists between dry bleach and Liquid Chlorine, and while this ratio may vary in the different mills it is now pretty well established to be much in excess of the theoretical ratio of 3 to 1. That is, three pounds of dry bleach will not bleach,



CIRCULATION TANKS, SHOWING PIPE CONNECTIONS

on the average, nearly as much as 1 pound of Liquid Chlorine.

In considering the labor question, we call your attention to our experience at the plant of the Fraser Co., Ltd., of Edmunston, N. B. Here we found a dry bleach plant which was inadequate to dissolve and store a sufficient quantity of liquor made from dry bleach. In December, 1920, Liquid Chlorine was introduced and without other changes than the addition of the necessary absorption towers, the bleach plant was increased to the capacity of the Bellmers and the number of men making bleach liquor was reduced, effecting a saving of $13.00 per day.

The handling of heavy drums is entirely dispensed with, especially where tank cars are in use, and yard labor is cut to a minimum; and right here may we emphasize that in some large mills the disposal of bleach drums and large quantities of sludge make up an item of expense which is eliminated with the use of Liquid Chlorine.

There are other well-defined advantages in connection with the use of this product. Its cleanliness and freedom from flying bleach dust is reflected in the fact that it is not difficult to keep labor on the job, as the work is anything but disagreeable.

There is much less tank capacity required for Liquid Chlorine than for dry bleach, as the strength of the liquor can be made double that at which dry bleach liquor is usually used, so that the capacity of the average bleach plant built for dry bleach can actually be doubled by a Liquid Chlorine installation.

In connection with the above, Liquid Chlorine produces an exceptionally rapid settling liquor due to its limited lime content, with a consequent increase in turnover in equipment.

Of interest to those whose duty lies in technical control will be the fact that an absolutely uniform strength liquor can be made with Liquid Chlorine. Once a standard is set it can be maintained indefinitely, up to 50 g. p. l.

It seems useless here to try and give any estimate as to the cost of an entirely new Liquid Chlorine installation such as the Lincoln

Paper bleach plant, as the size of the plant, the kind of pulp or paper to be bleached and many other variables enter into the problem. In a general way, however, a comparison of the first costs of a new dry bleach plant with that of a new Liquid Chlorine plant will show the latter to be considerably cheaper, due first to the fact that Liquid Chlorine can be stored in less space than its equivalent of dry bleach, and second, because less tank capacity is required for settling and storage, and this saving should, in our opinion, amount to at least 20 per cent.

The reconstruction of old bleach plants for the use of Liquid Chlorine is our usual problem and has in the majority of cases been a simple one. In addition to the absorption tower which can be constructed by the mill itself, there are usually a few pieces of special equipment such as the evaporator, chlorine valves, etc., which are now standardized. The cost of the absorption tower and special equipment is less than $1,000.00. Most mills must also figure on making a few changes in the piping arrangement and possibly the addition of a new pump to the present equipment. Considering the advantages to be gained, the cost of making these changes is of such minor importance as to be negligible.

Economic conditions brought about by post-war deflation have caused business in general (the pulp or paper mill included) to seek economies in production in an effort to meet a lower selling price.

While the importance of the bleaching operation varies greatly in mills, nevertheless there is no mill in which it is not of sufficient importance to warrant the closest scrutiny.

NOTE.—Due recognition is given Mr. J. R. MacMillan, Chief Chemist of the Niagara Alkali Co. and the Electro Bleaching Gas Co., who gave much time and thought through the early work up to the present wide commercial adaptation of Liquid Chlorine to the needs of the paper industry.

A NEW TESTER FOR PAPER

The house of B. F. Perkins & Son, Inc., Holyoke, Mass., manufacturers of the Mullen Testers, (adopted standard of the United States Government, the Freight Classification Committees and the general paper trade) has finally perfected the Perkins Tensile Tester, and is placing it on the market. The new Tester thoroughly fulfills the demand of paper manufacturers and users of paper and other materials of which it is desirable to obtain an accurate tensile or pull test.

The new Perkins Tensile Tester is of the vertical type, and is hydraulically operated. The cylinder is filled with a liquid which is compressed by a solid metal plunger, which fits the cylinder with a very accurately ground and lapped fit, and has no packings to wear out or get out of order. This plunger is attached to the upper or stationary clamp by means of a stirrup which brings the pull in a straight vertical line without cramping and without side pull.

The lower or moving clamp is attached to a vertical screw which is operated by means of a handwheel on the side of the machine.

The pressure is indicated on a specially made standard gauge which is acted on by hydraulic pressure from the cylinder.

The readings are given in pounds per inch breaking strength of a strip of paper or other material. The stock to be tested is therefore cut into strips one inch wide.

Removable and interchangeable stop-gauges are provided which automatically separate the clamp jaws one inch, two inches, or four inches apart, as desired, so that strips of these lengths may be tested easily.

The material is inserted and clamped uniformly and without side cramping by means of a device whereby the clamp jaws are held rigid during the insertion of the piece to be tested. As soon as the test begins to be made, the clamp jaws are freed so that they are on a swivel, and the strain of the material is thus taken up uniformly.

When the handwheel is turned the piece of paper or other material under test is subjected to a direct pull. This operates on the fluid in the cylinder, which simultaneously acts on the standard pressure gauge. The pointer on the gauge stops automatically as soon as the material breaks, and thus accurately indicates the tensile strength of the material to the exact breaking point in pounds per inch, the pointer remaining stationary until it is released by pressing a button on the side of the gauge.

The Perkins Tensile Tester has the special advantages of thorough and lasting reliability, mechanical simplicity, and ease of operation. Together with the Mullen Paper Tester, which registers bursting strength in pounds per square inch, the Perkins Tensile Tester, with its measure of tensile strength in pounds per linear inch, furnishes manufacturers and users of paper as thorough assurance as can be desired of a uniform standard of excellence of product such as modern technical and business requirements call for at the present time.

The new Tester is in full keeping with the reputation which the house of B. F. Perkins & Son has maintained for nearly fifty years. The best possible construction and workmanship is assured not only by the insistence of this firm on these qualities, but also by their long specialiaztion in the manufacture and perfecting of accurate and efficient machines for practical testing.

Colors of Rosin Grades Same in Fall as in Spring

The color for a given grade of rosin is always the same whether the rosin is produced in the spring or in the fall, say specialists of the Bureau of Chemistry, United States Department of Agriculture, who are developing better methods for producing and grading rosin.

It has recently come to the attention of the Bureau of Chemistry, that in certain sections users of rosin are being told that any particular grade of rosin made late in the producing year is darker in color than in the spring or early summer; or, more specifically, than "WW" rosin made in the spring or early summer, and so on throughout the grades.

It is true, according to the specialists of the Bureau of Chemistry, that rosin made from any given set of trees usually is darker when made late in the season, owing to the fact that the gum in flowing from the freshly cut surface to the box or cup must pass over a long exposed surface of the tree (this distance increasing from week to week throughout the producing season) and timber which early in the spring yielded "WW" rosin will late in the fall yield as low in some cases as "N" or "M" grades.

It is not true, however, that any designated grade of rosin is darker if produced at one season than if produced at another season or time of year, according to the specialists. The grade of a rosin is determined by its being equal to or better in color than the established and recognized type for that particular grade, due allowance being made for dirt or other suspended foreign matter present. For example, "WW" rosin, whether produced early in the spring or late in the fall, must equal the type for that grade. The same is true of any other grade of rosin. In other words, say the specialists, no buyer of rosin should accept a lower for a higher grade rosin under the misapprehension that such lower grade is actually the grade ordered and is darker in color or contains more dirt simply because it was produced late in the year.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Recovery of Caustic Alkali from Impure Liquors.—Fr. patent No. 514,856, Hoesch & Co., Germany, May 3, 1920.—*Industrie Chimique,* viii, 368 (Sept., 1921).—Waste liquors from certain industries using caustic alkalis contain considerable amounts of alkalis which are difficult to recover by the usual processes. They are electrolyzed in the presence of a mercury electrode, and the alkaline amalgam obtained is decomposed by water. Anodes of platinum, nickel or silver may be used, and pure oxygen gas is obtained as a by-product. To prevent the mixing of the oxygen with the hydrogen that might be evolved at the cathode, a porous diaphragm is used, the liquor being fed into the anode compartment and flowing through the diaphragm into the cathode compartment.—A. P.-C.

Improvement to Grinders.—Fr. patent No. 524,103, Emil Scherrer, Switzerland.—*Papeterie,* xliii, 839 (Sept. 25, 1921).—Same as Ger. patent No. 338,767. See this journal, lxxiv, No. 1, p. 49, Jan. 5, 1922.—A. P.-C.

Dryer Felts made of Asbestos and Other Fibers for Paper Machines.—Fr. patent No. 520,057, Carl Veit Filztuchfabrik, Germany, Feb. 6, 1921.—*Papier,* xxiv, 395-396 (Sept., 1921); *Monit. Papeterie Française,* lii, 646 (Oct. 15, 1921).—The warp threads of the felt are made of animal or vegetable fibers, and the filler is made entirely or partly of asbestos fibers.—A. P.-C.

Process for Sizing Paper or Cardboard.—Fr. patent No. 520,103, Zellkoll G.m.b.H., Germany, Feb. 7, 1921.—*Papier,* xxiv, 396-397 (Sept., 1921); *Monit. Papeterie Française,* lii, 645-646 (Oct. 15, 1921).—Paper can be sized on the machine directly with animal size, even without the addition of rosin size, provided the animal size is added in a gelatinous form so that it will melt during the drying operation. The size may be hardened by suitable means according to the temperature at which the drying is conducted and the quality desired of the finished product.—A. P.-C.

Dryer Felt of Asbestos and Wire.—Fr. patent No. 516,754, Eduard v. Asten, Germany, Dec. 9, 1920.—*Papier,* xxiv, 258 (June, 1920.—The felt is made so that the upper surface of the felt, which is in contact with the paper, is entirely composed of asbestos.—A. P.-C.

Process for Obtaining and Bleaching Textile Fibers or Paper Pulp from Plants.—Fr. patent No. 516,789, O. R. Bouvery and F. P. Conort, Algeria, Dec. 10, 1920.—*Papier,* xxiv, 258-260 (June, 1921).—The material may be first put through a stamping mill. It is then carded and subjected to the action of a solution of bleaching powder in water. As soon as the fibers are immersed in the bleaching liquor, a 2 per cent sodium carbonate solution or a 1 per cent sodium chloride solution is introduced through the bottom of the vessel in successive small portions. The quantity of this second solution which is used must be just sufficient to decompose the bleaching powder into hypochlorous acid and sodium hypochlorite without liberating chlorine. The nature of the fiber obtained depends on the length of time the solution is allowed to act. When it is considered the treatment has been sufficient, the fibers are removed from the liquor, allowed to drain, and air dried.—A. P.-C.

The Technique of Natural Reproduction, Formerly and Now.—Julius Eberhard.—*Forstwiss. Centralbl.,* xlii, 161-183, 204-226 (1920); *Botan. Abs.,* vii, 15 (Feb., 1921).—The author describes the development of silvicultural systems, beginning with the primitive irregular selection cutting, outlining Hundeshagen's, Gayer's, H. Mayer's, Borggreve's, Engler's, Wagner's, Mayr's, Kubelka's and Kalitsch's systems. In the author's opinion the present German silvicultural practice (which has also been carried to Russia by foresters trained in German schools) is far behind that at the beginning of the nineteenth century. The prevailing forest form has changed during the last 200 years from a straight selection forest to extensive pure even-aged forests produced artificially. It is now returning gradually to a modified selection form, very much more intensively cultivated than formerly, with mixed stands and natural reproduction.—A. P.-C.

Silvicultural Excursion in the Home of the Langenbrand Wedge-Shelterwood Cutting.—L. Fabricius.—*Forstwiss. Centralbl.,* xlii, 233-237 (1920); *Botan. Abs.,* vii, 16 (Feb., 1921).—The author describes the silvicultural system used by Dr. Eberhard in the Langenbrand forest (Wurttemburg). This consists of a preparatory stage in which the stand is prepared for reproduction by repeated moderate thinnings, and a stage of removal cuttings beginning about five years after reproduction is established. The paratory cuttings are intended primarily for getting rid of the raw humus, which may also be removed by hand either over the whole area or in seed spots. These cuttings also make room for reproduction, especially of tolerant species, to start. The removal cuttings are rather light and repeated every year if practicable. They begin in the interior of the stand and progress outward, beginning with small openings, which are gradually enlarged into a wedge shape with the point towards the wind. The shape of the opening is not definite, but may be varied to suit local conditions. Damage from storms and logging is reduced to a minimum, and natural reproduction is very successful. Of the whole area, 92 per cent has been reproduced naturally. The principal characteristic which distinguishes this from certain other methods is the shape and arrangement of the cuttings so as to eliminate damage from logging and from wind.—A. P.-C.

Humidity in Relation to Moisture Imbibition by Wood and to Spore Germination in Wood.—S. M. Zeller.—*Ann. Missouri Botan. Gardens,* vii, 51-74 (1920); *Botan. Abs.,* vii, 59 (Feb., 1921).—The moisture content of wood at various atmospheric humidities are represented, the temperature being held at 25° C. Graphs are given to illustrate the relation between moisture content and humidity, for sap and heart-wood both of longleaf and shortleaf pine. By testing at various humidities the moisture content of any one species of wood it was possible to approximate the fiber saturation point. The moisture-humidity curves of highly resinous samples illustrate the waterproofing effect of rosin—especially above 50 per cent humidity. The germination curve for spores of *Lenzites saepiaria* illustrates the fact that spore germination is greatly accelerated when the atmospheric humidity is high enough to maintain fiber saturation of the wood. A humidor for maintaining constant humidity and temperature is described. It is provided with a dew-point apparatus for the determination of humidity, and a weighing device by means of which the samples can be weighed without opening the humidity chamber.—A. P.-C.

Transplanting Tests at Silkeborg and Vemmetofte Forests.—J. Helms and P. Wegge.—*Forst. Forsögsv. Danmark,* v, 225-292 (1920); *Botan. Abs.,* vii, 240.—The article gives the conclusions reached as the result of experiments in grading and pruning transplant stock of *Abies normanaica* and *Picca excelsa* carried out from 1915 to 1917.—A. P.-C.

The Scotch Pine.—*Rev. Eaux et Forêts,* lviii, 161-162 (1920); *Botan. Abs.,* vii, 110 (March, 1921).—Artificial reforestation of Scotch pine can be largely or perhaps wholly avoided by the clear cutting of long narrow strips, lying at right angles to the direction of the prevailing winds.—A. P.-C.

Developments at the Swiss Forest Expermient Station.—G. Uffel.—*Rev. Eaux et Forêts,* lviii, 249-254 (1920); *Botan. Abs.,* vii, 116 (March, 1921).—Since 1900 the Swiss forest experiment station has been studying the influence of a forest cover on stream flow in two neighboring and comparable watersheds, one of which was 97 per cent and the other 29 per cent forested. Actual measurements show that forest soils in good condition absorb the bulk of the precipitation, which later runs off subterraneously; while in soils not so protected there is an immediate run-off accompanied by erosion and gullying, particularly on steep turfed slopes. During periods of prolonged drought the stream from the well-forested watershed never went dry, while that from the poorly forested one often did so for a month or two at a time. All these differences would have been more marked if the well-forested watershed had not had appreciably steeper slopes than the other, and if the latter had been completely deforested.—A. P.-C.

Pulpwood from Labrador.—J. T. Rowland.—*Sci. Amer.,* cxxiii, 156 (1920); *Botan. Abs.,* vii, 242 (April, 1921).—Descriptive of a belt of timberland on the Labrador coast some 400 miles long, which is accessible by navigable waterways to an average depth of about 30 miles. The timber consists chiefly of spruce (*Picea nigra*) and tamarack (*Larix americana*) from a few inches to two feet in diameter at the butt. It is suitable for pulpwood but of little or no value for any other purpose.—A. P.-C.

Second National "Book Congress," Paris, June, 1921.—*Papier,* xxiv, 267-271 (June, 1921).—Brief account of the convention of all the industries which contribute towards the making and selling of books—papermakers, printers, binders, book sellers, etc.—and also of authors, held in Paris June 13 to 19, 1921.—A. P.-C.

Use of the Heat Pump (Steam Compressor) in the Evaporation of Water and Aquesus Solutions.—H. Claassen.—*Z. angew. Chem.,* xxxiv, 233-235 (1921); *J. Soc. Chem. Ind.,* xl, 455A (July 15, 1921).—(Compare this journal, lxxiii, No. 7, p. 26, Aug. 18, 1921).—The compression of the steam generated by the evaporation of solutions, so as to render it utilizable for heating the evaporators demands considerable expenditure of power for driving the compressor, and an additional disadvantage lies in the fact that a large amount of exhaust steam from the compressor itself has to be disposed of. With weak solutions a saving of steam is effected only by linking the compressor to the first effect of a multiple-effect evaporator system; but with more concentrated solutions and steam at higher pressure compression offers no advantage. A piston compressor gives better results than a centrifugal compressor, but the oil which is carried over diminishes the transmission of heat. Steam jet compressors are preferable. Taking into account the high power-consumption of compressors, their use does not tend to economize the process of evapration unless a natural source of power, such as water, is available.—A. P.-C.

Friction Calenders.—R. Miller.—*Papeterie,* xliii, 586-588 (July 10, 1921).—Brief practical notes on the use and care of friction calenders.—A. P.-C.

The Manufacture of Cardboard in France.—Auguste Biclet.—*Monit. Papeterie Française,* lii, 430-434 (July 15, 1921); *Papier,* xxiv, 289-293 (July, 1921).—Description of the manufacture of cardboard, of the various grades and their uses, together with a discussion of the present status of the cardboard in France.—A. P.-C.

The Paper Industry in Roumania.—*Industria della Carta; Papeterie,* xliii, 592 (July 10, 1921).—Brief sketch of the present status of the Roumanian paper industry.—A. P.-C.

The Consumption and Manufacture of Mechanical and Chemical Wood Pulp in France.—Auguste Biclet.—*Papier,* xxiv, 271-274 (June, 1921); *Monit. Papeterie Française,* lii, 427-430 (July 15, 1921).—An analysis of the requirements of the French paper industry in mechanical and chemical wood pulps and of the causes which prevented the development of these industries in France, resulting in a dependence of the paper industry on foreign countries for a large proportion of its raw materials. The whole question resolves itself into a question of capitalization. The manufacture in France of the 200,000 tons of groundwood which are at present imported annually would require a capital of 80 to 90 million francs if the power were bought from central power stations, 140 to 150 million if steam driven grinders were used, and 200 to 210 million if the groundwood mills installed their own water power stations. For the manufacture in France of the 200,000 tons of chemical pulp which are imported, a capital of about 300 to 350 million francs would be required. It is generally considered by capitalists that there are more profitable industries than the pulp industries, and therefore such large sums are not readily forthcoming.—A. P.-C.

Electric Steam Boilers in Pulp Mills.—Captain Olsson.—*Papier-Journalen,* Dec. 4, 1920; *Pulp and Paper,* xix, 805-806 (Aug. 4, 1921). Translation by Paul Bartholow.—Discussion of the advantages of electric steam boilers, and of their use in Swedish pulp mills. The Apparat Aktiebolaget, of Stockholm, manufacture both low and high tension types of electric boilers, using current up to 20,000 volts, and of capacity up to 8,000 kilowatts. The electrode type of boiler and its method of operation is briefly described. At the pulp and paper mills of the Wargon Company there are seven electric boilers, each of 2,000 kilowatts, taking current at 10,000 volts and generating steam at 12 kilos (about 160 lbs.), which supply all the steam necessary for the manufacture of both sulphate and sulphite pulps. The boilers have been eminently satisfactory, their operation is simple, convenient and clean, and it is estimated that they effect a saving of about 10 per cent.—A. P.-C.

Chemical Composition of the Reed Phragmites Communis, Trin.—*Cellulose Chem.,* ii, No. 3; *Paper,* xxviii, No. 13, 16-17 (June 1, 1921).—Translation by Clarence J. West.—A. P.-C.

The Testing of Cardboard: Bulk and Calendering.—Raymond Isnard.—*Papeterie,* xliii, 102-106 (Feb. 10, 1921.)—Bulk is the ratio of the volume to the weight of the cardboard; it is therefore the reciprocal of the density. By measuring the length, breadth and thickness are obtained the apparent volume and the apparent bulk, M_a; and by measuring the volume by immersion in water are obtained the true volume and the true bulk, M_t. The difference between the two represents the volume of air contained in the cardboard, and this is inversely proportional to the pressure exerted during calendering. $\frac{M_a}{M_a - M_t} = K$ is called the *coefficient of calendering.* An example is given to show how the latter, together with a microscopical examination, can be used to ascertain the nature of the stock and the treatment to which it was subjected, and thus determine its suitability for the purpose in view.—A. P.-C.

Analysis of Cardboard: Bulk and Calendering.—Raymond Isnard.—*Paper Trade J.,* lxxiii, No. 12, 44, 46 (Sept. 22, 1921).—Translation by A. Papineau-Couture. See preceding abstract.—H. E. W.

The Testing of Cardboard: Elasticity or Rigidity, and Folding.—Raymond Isnard.—*Papeterie,* xliii, 578-586, (July 10, 1921). Translated by A. Papineau-Couture in *Paper Trade J.,* lxxiii, No. 16, 40, 42, 44 (Oct. 20, 1921).—The general principles of the testing of the strength of beams may be applied to the testing of the rigidity, or, what comes to the same thing, the elasticity, of cardboard; and if a strip of cardboard be placed on two supports at a distance l apart and subjected to a load P at its center, the deflection f is $\frac{Pl^3}{48.EI}$ where E is the modulus of elasticity and I the moment of inertia of the section. In the apparatus described a strip 1 x 10 centimeters is supported on knife-edges exactly 50 mm. apart, so that 25 mm. project at either end. A graduated lever, pivoted at one end, carries a third knife-edge by means of which the load is applied to the middle of the test strip. The weight of

the lever and knife-edge is counterbalanced by means of an adjustable counterpoise, and the load is carried by means of a rider (or riders) on the lever arm. The deflection on applying the load is read by means of a mirror fixed to the lever and a scale graduated in mm. Then if d and D be the respective distances of the deflecting knife-edge and of the scale from the mirror, P the equivalent load at the center of the test strip, n the reading on the scale, and e the thickness of the cardboard, $E = \frac{6250\,P}{ne^3} \cdot \frac{D}{d}$. As the possible error in the determination of the thickness is about 2 per cent, and E involves e^3, the limit of accuracy is not greater than 6 per cent. *Another test.* If the test strip be folded completely over (presumably without creasing), weighted in this position for 15 minutes, released and allowed to stand for several hours, it will be noted that it finally attains a definite "fold angle," which varies from 20 to 25 degrees for very rigid cardboard to 60 degrees for roofing felts. Comparative results on different samples can be obtained only by applying the test in exactly the same manner in each case. If properly carried out this test will class boards in the same order as the determination of elasticity. An examination of the fold can furnish valuable information as to the composition and quality of the cardboard.—A. P.-C.

The Analysis of Straw Pulp for Alkali-Content.—Emil Heuser and Theodor Blasweiler.—*Papierfabr.*, xix, 509-514 (May 27, 1921); *Paper*, xxviii, No. 19, 22, 30 (July 13, 1921).—The following method for the alkali content has been found to give accurate results. For total alkali, 10 g. of dry pulp is treated with decinormal sulphuric acid and the excess acid titrated. For fixed alkali, that is, the portion that is not extracted by washing with water, 10 g. of the pulp is heated with 400 cc. of water, pressed, treated for several hours with decinormal sulphuric acid, and the excess of acid titrated. The free alkali (that is, the portion that can be washed out with water) is obtained by difference. Decinormal acid is used since centinormal is too sensitive and gives slightly inaccurate results, and normal acid requires a large quantity of pulp.—A. P.-C.

Silica Content of the Reed Phragmites Communis, Trin.—F. Herig.—*Cellulose Chem.*, ii, 44-47 (1921); *Paper*, xxviii, No. 20, 24-25 (July 20, 1921).—The reed differs from other plants used in paper making in its high ask and silica content, which average 5.83 and 4.42 per cent, respectively.—A. P.-C.

Multiple Effect Evaporation.—Burton Dunglinson.—*Chem. Met. Eng.*, xxv, 110-115 (July 25, 1921).—Outline of the development of evaporator design since 1885, together with a discussion of the Multiplex Film Evaporator as regards features of construction and operation and a comparison of the multiplex with other types.—A. P.-C.

Meeting of the Canadian Box Manufacturers' Association, Hamilton, Ont., June 23, 1921.—*Pulp and Paper*, xix, 738-739, (July 14, 1921); 763-764 (July 21, 1921).—Text of President C. T. Reid's address and of Secretary-Treasurer S. J. Frame's report for the year.—A. P.-C.

The Corrosion of Steam Boilers and Its Prevention by the Elimination of the Gases Dissolved in the Water.—G. Paris.—*Chimie et Industrie*, vi, 11-32 (July, 1921).—A. P.-C.

A Study of the Fundamental Laws of Filtration Using Plant-Scale Equipment.—Fred P. Baker, Massachusetts Institute of Technology, Cambridge, Mass.—*J. Ind. Eng. Chem.*, xiii, 610-612 (July, 1921).—A study of some of the factors determining the capacity of a filter-press, using commercial size filters, showing the applicability of a simple fundamental equation expressing the relationship between rate of flow, pressure, and thickness of cake, and showing also the proper way of increasing the pressure and the most efficient cycle length. The fundamental law of filtration is $\frac{dV}{d\theta} = \frac{KA^2P^n}{V^m}$ in which $\frac{dV}{d\theta}$ is the rate of flow, K is a constant, A is the filtering area in square feet, n is a constant dependent on the nature of the sludge, V is the total volume in cubic feet of liquid which has been filtered, and m is a constant which is very close to 1.0. The method of using the equation to determine the constants K, m, n is illustrated by an example, and it is then shown how to calculate the size of a filter which is to have a given capacity. Curves are given which demonstrate clearly the superiority of a constant rate of flow over constant pressure when there is a compressible solid in the sludge.—A. P.-C.

Vacuum Drying.—C. O. Lavett and D. J. Van Marle, Buffalo Foundry and Machine Works, Buffalo, N. Y.—*J. Ind. Eng. Chem.*, xiii, 600-605 (July, 1921).—A description of the general characteristics common to all vacuum dryers which tend to differentiate them from other types, comprising the field, limitations, advantages, principle, and method of application of heat, together with a description of the rotary, shelf, and drum types.—A. P.-C.

Studies on the Toxicity of Wood Preservatives, III.—C. J. Humphrey, Ruth M. Fleming and E. Bateman, Lab. of Forest Pathology, Bureau of Plant Industry, in co-operation with the Forest Products Lab., Madison, Wis.—*J. Ind. Eng. Chem.*, xiii, 618-621 (July, 1921).—The fungus used for the tests was *Fomes Annosus* (Fr.). The advantages of the petri-dish method for carrying out the tests are enumerated.—A. P.-C.

Experimental Study of the Significance of "Lignin" Color Reactions.—Ernest C. Crocker, Massachusetts Institute of Technology, Cambridge, Mass.—*J. Ind. Eng. Chem.*, xiii, 625-627 (July, 1921); *Paper*, xxviii, No. 26, 22-23, 32 (Aug. 31, 1921).—The Mäule test was found to give a distinct red color only in the case of deciduous woods and may prove valuable as a means of distinguishing between deciduous and coniferous woods, in mixtures of chips. Apparently no color test is an inicator of *lignin*, but of traces of materials (aldehydic for most of the tests) which usually—perhaps always—accompany lignin. The ferric ferricyanide test (acting as it does in the presence of almost any reducing agent) is too general to be considered as a "lignin" reaction.—A. P.-C.

List of Abbreviated and Full Titles and of Addresses of the Journals From Which Abstracts Have Been Prepared for This Issue.

Ann. Missouri Botan. Gardens.	Annals of the Missouri Botanical Gardens. Board of Trustees of the Missouri Botanical Gardens, 10 Depot street, Concord, N. H.
Botan. Abs.	Botanical Abstracts. Williams & Wilkins Co., Mount Royal and Guilford avenues, Baltimore, Md.
Cellulosechem.	Cellulosechemie. Otto Elsner, Oranienstr., 140-142, Berlin, S. 42, Germany.
Chem. Met. Eng.	Chemical and Metallurgical Engineering. McGraw-Hill Co., Inc., Tenth avenue at 36th street, New York City.
Chimie et Industrie	Chimie et Industrie. 49 Rue des Mathurins, Paris, France.
Industrie Chemique	L'Industrie Chimique. H. Mounier, 32 Rue Le Peletier, Paris (9°), France.
J. Ind. Eng. Chem.	Journal of Industrial and engineering Chemistry. Charles L. Parsons, 1709 G street, N. W., Washington, D. C.
J. Soc. Chem. Ind.	Journal of the Society of Chemical Industry. Central House, 46 and 47 Finsbury Square. London, E. C. 2, England.
Monit. Papeterie Française	Le Moniteur de la Papeterie Française. 154 Boulevard Haussmann, Paris (8°), France.
Paper	Paper. 251 West Nineteenth street, New York City.
Paper Trade J.	Paper Trade Journal. 10 East Thirty-ninth street, New York City.
Papeterie	La Papeterie. 9 Rue Lagrange, Paris (5°), France.
Papier	Le Papier. 16 Rue du Rocher, Paris (8°), France.
Papierfabr.	Der Papier-Fabrikant. Otto Elsner, Oraniestr. 140-142, Berlin, S. 42, Germany.
Papir-Journalen	Papir-Journalen. Papierindustriens Hus, Huitf. gt. 1, Kristiania, Norway.
Pulp and Paper	Pulp and Paper Magazine of Canada, Gardenvale, Que., Canada.
Rev. Prod. Chim.	La Revue des Produits Chimiques. 54 Rue de Turbigo, Paris (3°), France.
Seifensieder-Ztg.	Seifensieder-Zeitung und Rundschau fibre die Harz-, Fett- und Olindustrie. Verlag für chemische Industrie, H. Ziolkowsky, G. m. b. H., Augsburg, Germany.
Z. Angew. Chem.	Zeitschrift für angewandte Chemie. Verlag für angewandte Chemie, G. m. b. H., Nürnberger, Str. 48, Leipzig, Germany.

BIBLIOGRAPHY OF PAPERMAKING FOR 1921

Technical Association of the Pulp and Paper Industry, Committee on Bibliography, Contribution No. 36

By Clarence Jay West, Chairman, Committee on Bibliography, T. A. P. P. I.

Contribution No. 35 of the Committee on Bibliography was "Recent Literature on Soda and Sulphate Pulp," a reading list compiled by Clarence J. West, and appeared in the Paper Trade Journal for October 20, 1921 (vol. 73, No. 16, 46-52). It is hoped that this Bibliography on Paper Making may be made an annual feature of the work of the Committee on Bibliography.

The year 1920 marked a notable advance in American papermaking literature in that Witham's *Modern Pulp and Papermaking* and Sutermeister's *Chemistry of Pulp and Papermaking* appeared. 1921 will be remembered because of the appearance of the first two volumes of *The Manufacture of Pulp and Paper*, devoted, it is true, to the fundamental subjects of Mathematics, Physics and Chemistry. Their appearance, however, is the best indication of the activity of the Educational Committee and we await with much interest the volumes dealing directly with the questions of pulp and paper. Volume three is to discuss the manufacture of pulp, while volumes four and five are devoted to paper.

Herzberg has issued a fifth edition of his well-known methods of testing. A second edition of Schwalbe and Sieber, noticed last year, has been promised but has not appeared as yet.

The serious student of the chemistry of cellulose will find much of interest in Heuser's Lehrbuch der Cellulosechemie. It is quite different in character from Schwalbe's earlier treatise, since it covers only 185 pages and attempts to critically discuss the voluminous literature of cellulose, while Schwalbe apparently intended to make his volume a compendium of the literature. There is room for both kinds of treatment. We hope within a year or two to be able to chronicle the monograph which we are led to expect will appear in the American Chemical Society Series. The ambitious program as outlined by Wise and printed in *Paper* will, if consistently carried out, give us an excellent treatise on the subject. We believe that the technical man of the future will be a student of the chemistry of cellulose and that his knowledge of the chemical and physical properties of his raw materials will enable him to more intelligently solve the problems of papermaking.

An interesting development of the past year is the decision of the Technical Society to run a Technical Section in connection with the Paper Trade Journal, under the direction of the Secretary of the Society. It is to be hoped that every member of the Society will feel that this Section belongs, in some part, to him, and that he should do all he is able to support it and to make it a real success. It is also interesting to note that during the past year the German Society has adopted *Zellstoff und Papier* (formerly *Zellstoffchemische Abhandlungen*) as its official organ. This is composed of a Chemical Part, edited by Schwalbe, and a Mechanical Part, edited by Ferenczi. The greater part of the material thus far published has been chemical in character.

The following classification has been used in preparing this bibliography. The Chairman of your Committee would be glad of suggestions for improving this compilation and for making it of greater value to the members of the Society.

Books and pamphlets
Bibliographies
Cellulose and its derivatives
Lignin
Raw materials
  General
  Special
Sulphite process
Sulphite waste liquors
Sulphate and soda processes
Mechanical wood pulp
Machinery
Beating
Bleaching
Sizing
Filling and coating
Dyeing
Drying
Analytical chemical control
Pulp testing
Paper testing
Special papers and articles of manufacture
Paper textiles
Education and research
Cost accounting
Statistics
Miscellaneous.

Books, Pamphlets, Etc.

American Paper and Pulp Association.
Statement of changes desired in Schedule M of the Tariff Act of 1913. With briefs supporting desired changes filed by the several Associations of the Paper Industry. For submission to the Ways and Means Committee, H. R., Feb. 5, 1921. Special Report No. 2, from American Paper and Pulp Association, New York, Jan., 1921. 62 pp.

American Paper and Pulp Association.
Condition in Paper Industry as reported at the Annual Convention of the American Paper and Pulp Association, held in New York City, April 14, 1921. Special Report No. 3, from American Paper and Pulp Association, New York, April, 1921. 28 pp.

American Paper and Pulp Association.
Symposium by manufacturers, merchants and consumers at the Third fall business conference of the American Paper and Pulp Association, Chicago, Nov. 3, 1921. Special Report No. 4 from American Paper and Pulp Association, New York City. 45 pp.

Annuaire de la Papeterie universelle, 1921.
Paris, L'homme et Argy, 1921. 746 pp. 23 Fr.

Az-Taschenbuchsammlung für den Papierhandel, dreisprachig (deutsch, französisch, englisch) mit Telegrammschlüssel. 1. Paper trade customs. 2-5. Terms for paper and boards. 6. Sizes of paper. 7. Weight tables. 8. Az paper code. 9. Price tables. 1, 9M 60 pf. 2-4, 14 M 40 pf. each. 5, 36 M. 6, 7 M 20 pf. 7, 7 M 20 pf. 8, 60 M. 9, 9 M 60 pf.

Badischen Anilin—und Soda-Fabrik.
Anleitung für die Verwendung der Teerfarbstoffe zum Färber von Papier sowie von Bleichmitteln für die Papier-Rohstoffe. Ludwigshaften a. Rhein. 48 pp. 1921.

Brusewitz, Hugo.
Brusewitz Nordisk Papperskalender, 1921. Unter Mitwirkung der Sekretare der schwedischen Holzstoff und Zellulosevereine. Goteburg, 1921. 18 kr. 302 pp. Reviewed in Papier-Ztg. 46, 1924.

Cost Association of the Paper Industry.
A budget cost system for paper mills. Revised edition of the "Report of the Committee on costs" published in 1918 by the Cover Paper Manufacturers' Association. New York, 1921. 48 pp.

Grewin, Fr.
Användning av Wärme och Kraft inom Pappersindustrien. (Use of heat and power in the paper industry). No. 8 of the "Ingeniörs Vetenskap Akademien," Stockholm, 1921. 2.50 kr.

Griffin, R. C.
Technical Methods of Analysis. New York, McGraw Hill Book Co., 1921. 666 pp. Chapter VIII, Analysis of wood and paper products.

Hagglund, Erik.
Die Sulfitablauge und ihre Verarbeitung auf Alkohol. 2nd Edition. Verlag Friedr. Vieweg und Sohn, Braunschweig, 1921. 82 pp.

Haskell, William E.
Newsprint, the origin of papermaking and the manufacturing of newsprint. New York, International Paper Co., 1921. 71 pp.

Herbberg, Wilhelm.
Papierprufung. 5th Edition. Verlag von Julius Springer, Berlin, 1921. 100 M (bound). 241 pp.

Heuser, Emil.
Lehrbuch der Cellulosechemie. Berlin, Borntraeger, 1921. 188 pp. Reviewed in Paper Makers' Monthly Journal, 59, 123.

Hossle, Friedr. von.
Geschichte des alten Papiermachenhandwerks in weyland Heyligen Römischen Reich. Verlag des Zentralblatt für die Papierindustrie, 1921. 60 M.

Indian Trade Inquiry Reports on Timbers and Paper Materials. London, John Murray, 1921. 4s.

L'Industria della carta in Italia. Annuario della Cartiere Italiane, 1921. Verlag der Zeitschrift "L'Industria della Carta e delle Arti Grafiche," Milan, 1921. 280 pp. 40 lire.

Joint Executive Committee of the Vocational Education Committees of the Pulp and Paper Industry of the United States and Canada. The manufacture of pulp and paper; a textbook of modern pulp and paper mill practice, prepared under the direction of the joint executive committee on vocational education, representing the pulp and paper industry of the United States and Canada. 1st Edition. New York, McGraw Hill Book Company, 1921.
J. Newell Stephenson, Editor. Vol. 1: Arithmetic, elementary applied mathematics, how to read drawings, elements of physics, by J. J. Clark. Vol. II. Mechanics and hydraulics, elements of electricity, elements of chemistry, by J. J. Clark and T. L. Crossley.

Junge, K. G.
Die Klebstoffe, ihre Beschaffenheit, Anwendung und Verarbeitung von Hand und Maschinen in den Pappe und Papier verarbeitenden Industrien. 2nd Edition. Dresden, Verlag Teich und Lange, 1921. 78 pp. 8.50 M.

Lockwood Trade Journal Company.
Lockwood's Directory of the Paper, Stationery and Allied Trades, 1922. 47th Edition. New York, Lockwood Trade Journal Co., Inc., 1921. $7.00.

Papermakers Directory of All Nations.
Containing the principal paper, pulp and board mills of the world. London, Dean and Son, Ltd., 1921.

Paper Mills Directory of England, Scotland, Ireland, and year book of the papermaking trade. 61 Annual Edition, 1921. London, Simpkin, Marshall, Hamilton, Kent and Co., Ltd.

Paper Record, a national directory devoted to the buyer of writing and printing papers. New York, Walden, Sons and Mott, Inc., 1921. Published annually in conjunction with and as a supplement to Printing.

Papier Adressbuch von Deutschland. 1269 pp. 150 M. Reviewed in Papier-Ztg. 46, 37, 1530.

Papier-Kalender, 1921.
Jahresbericht uber wichtige Neuerungen in der Papierfabrikation und technisches Hilfbuch nebst Adressbuch, von Willy Ebert. Hellmuth Henklers Verlag, Dresden. M. 12.75.

Papyrus Annuaire de toutes les industries du papier. L'Administration Papyrus, Paris. 996 pp. Directory of interests connected with the French Paper Trade. Reviewed in Paper Makers Monthly Journal 59, 205.

Post's Paper Mill Directory for 1921. New York, L. D. Post. 700 pp., $4.00.

Salade, Robert F.
How paper boxes are made; a practical and instructive book telling how the beginner may manufacture all kinds of paper boxes, etc. Lafayette, Ind., The Shears Publishing Co., 1920. 225 pp.

Salesmen's Association of the Paper Industry.
The salesman and industry. Special Report No. 2 of the Salesmen's Association of the Paper Industry (1921). New York. 1. Service and salesmanship, George C. Stewart. 2. Commerce and Industry, Charles C. Parlin. 3. Efficiency Fundamentals, Harrington Emerson. 4. The ten commandments of salesmanship, Frank Crane.

Schmitz, Ferdinand.
Die Papiermuhlen und Papiermacher des bergischen Strundertals. Otto Lapp et Cie. 400 pp. 30 M. 1921.

Schule, W.
Theorie der Heisslufttrocknen. Berlin, Julius Springer, 1921. Reviewed in Papierfabr. 19, no. 10, 222.

Searle, A. B.
Clay and Clay Products. In Third Report on Colloid Chemistry and its General and Industrial Applications. London, H. M. Stationery Office, 1920. See pp. 113-154.

Smith, Clinton G.
Regional Development of pulpwood resources of the Tongass National Forest, Alaska. Washington, Government Printing Office, 1921. 40 pp. (U. S. Dept. Agriculture, Bulletin 950).

Smith, Sigurd.
Heltojshollaendern I og II, en theoretisk undersogelse. Copenhagen, I kommission for Danmark: H. Hagerup, 1919. 125 pp. 10 kr. Thesis of the Polytekniske laereanstalt, Copenhagen. Reprinting on Der Papierfabrikant, 1921-1922.

Strathmore Paper Co.
Grammar of Color—Arrangement of Strathmore Papers in a variety of printed color combinations according to the Munsell color system. With an introduction by Prof. A. H. Munsell and explanatory text with diagrams illustrating the application of the system to work in the graphic arts by T. M. Cleland. 1921. Mittineague, Mass. The Strathmore Paper Co. 28 p. 2 colored pl. 19 color sheets, with 26 sheets of cover paper as a separate. $10.00.

Südosteuropäisches Papieradressbuch mit den Adressen der Papier-Zellulose—und Papierfabriken Oesterreichs, der Tachechoslowakei, Polens, der Ukraine, Rumaniens, Jigoslawiens und der übrigen Balkanstaaten. Adolf Hladufka. 14th Edition. "Zentralblattes für die Papierindustri." M 23.50.

Technical Association of the Pulp and Paper Industry.
Technical Association Papers, Series IV, No. 1. New York, Office of the Association, 1921. 140 pp. $3.00.

Textor, Clinton K.
Alkali recovery in the sulphate process. New York, Alberene Stone Co., 1921. 15 pp.

Unger, Arthur W.
Wie ein Buch entsteht. 5th Edition. Leipzig and Berlin, B. G. Teubner, 1921. 8.80 M.

United States—Department of Agriculture.
Pulpwood consumption and wood pulp production, by R. V. Reynolds and Albert H. Pierson. Prepared in cooperation with the American Paper and Pulp Association. New York, American Paper and Pulp Association, 1921. 39 pp.

United States—Tariff Commission.
Building paper, paper boards and filter masse. Tariff Information Surveys on the articles in Paragraphs 320 and 321 of the Tariff Act of 1913 and related articles in other paragraphs. Washington, Government Printing Office, 1921. 50 pp. (Designated as M-1).

United States—Tariff Commission.
Clays and earths. Tariff Information Surveys on the articles in Paragraph 76 of the Tariff Act of 1913. Revised edition. Washington, Government Printing Office, 1921. Kaolin or China clay, pp. 7-22.

United States—Tariff Commission.
Fine paper and envelopes. Tariff Information Surveys on the articles in Paragraphs 326 and 327 of the Tariff act of 1913 and related articles in other paragraphs. Washington, Government Printing Office, 1921. 35 pp. (Designated as M-6).

United States—Tariff Commission.
Jacquard designs, wall paper and wrapping paper. Tariff Information Surveys on the articles in Paragraph 328 of the Tariff act of 1913 and related articles in other paragraphs. Washington, Government Printing Office, 1921. 40 pp. (Designated as M-7).

United States—Tariff Commission.
Starch and related materials. Tariff Information Surveys of the articles in Paragraph 234 of the Tariff act of 1913. Revised edition. Washington, Government Printing Office, 1921. 36 pp.

United States—Tariff Commission.
Tissue, bibulous and filter paper; parchment paper and imitation parchment paper; parchment and vellum. Tariff Information Surveys on the articles in Paragraph 323, 324 and 568 of the Tariff act of 1913. Washington, Government Printing Office, 1921, 37 pp. (Designated as M-3).

Ward, George W.
Wall paper, its origin, development and manufacture. London, Isaac Pitman and Sons, Ltd. 1921, 3s.

Warren, S. D. Co.
Better paper—better printing. Warren's Cumberland coated book, with supplementary exhibits of halftone and border finishes. Boston, S. D. Warren Company, 1920. 16 p.

Weichelt, August.
Buntpapierfabrikation. 2nd. ed. Verlag Papier-Zeitung. 1921 (?). 329 pp. 209 inserts of colored papers. 178 illus.

Weyerhaeuser Forest Products.
Research department report on the paper manufacturing industry. St. Paul, Weyhaeuser Forest Products, 1921. 16 pp.

Wheelwright, William B.
Treatise on papermaking. 25 pp. Published by Louisville Paper Co., in its "Progress, Paper and Printing." 1920.

Wright, J. C.
Vocational education in the pulp and paper industry. Scope of vocational education, analyses of payroll jobs and synopsis of the textbooks. Published by the Joint Executive Committee of the Pulp and Paper Industry. Reprinted from the Paper Trade Journal.

Worden, Edward C.
Technology of Cellulose esters. Vol. 1. Raw materials of cellulose and its modifications; starch and similar carbohydrates; etc. London, E. and F. N. Spon, 1921. £10 10s net. 5 parts, 3,087 pp.

Bibliographies

Committee on Bibliography, Technical Association of the Pulp and Paper Industry.

No. 23. Papermaking materials. Compiled by Clarence Jay West. (Continued from 1920).
Paper Trade Journal 72, No. 2, 46ff; No. 3, 30ff; No. 4, 34ff; No. 5, 60ff; No. 6, 58ff; No. 7, 64ff; No. 8, 48ff; No. 9, 54ff; No. 10, 48ff (Jan. 6—Mar. 3, 1921).
Reprinted as Bibliographic Series No. 6, of Arthur D. Little, Inc., of Cambridge, Mass. 170 pp. 1921.

No. 24. Bibliographie de la Papeterie (A bibliography of Papermaking.) Compiled by Charles Dumercy. Translated by Dard Hunter.
Paper Trade Journal 72, No. 11, 56-66; No. 12, 54-62 (Mar. 10-17, 1921).

No. 25. Paper manufacture. A bibliography compiled by H. H. B. Meyer.
Paper Trade J. 72, No. 13, 56-66; No. 14, 50-58; No. 15, 48-60 (Mar. 24-31, Apr. 7, 1921).

No. 26. Recent literature on the determination of cellulose. Compiled by Hottenroth; translated by Clarence J. West.
Paper Trade J. 72, No. 17, 50-54 (Apr. 21, 1921).

No. 27. A bibliography of marbled paper. Dard Hunter. Paper Trade J. 72, No. 18, 52ff. (April 28, 1921.)

No. 28. Reciprocity and the tariff in the paper industry. Clarence J. West. Paper Trade J. 72, No. 19, 48ff. (May 5, 1921.)

No. 29. The dyeing of pulp and paper. Clarence J. West. Paper Trade J. 72, No. 20, 46ff. (May 12, 1921.)

No. 30. Reading list on paper yarns and textiles. Clarence J. West. Paper Trade J. 72, No. 22, 42ff. (May 26, 1921.)

No. 31. Clay in the paper industry. A reading list compiled by Clarence J. West. Paper Trade J. 72, No. 23, 52ff. (June 2, 1921.)

No. 32. Special Papers, III. Cigarette paper, a reading list. Clarence J. West. Paper Trade J., No. 25, 44ff. (June 16, 1921.)

No. 33. Paper Research Literature, VIII. The work of C. F. Cross. Arranged by Clarence J. West from World's Paper Trade Rev. 75, No. 4, 338 (Jan. 28, 1921); Paper Trade J. 73, No. 3, 46ff. (July 21, 1921.)

No. 34. Sulphate pulp and kraft paper. List of references covering the literature up to 1912. Clinton K. Textor. Paper Trade J. 73, No. 4, 46ff.; No. 6, 46ff.; No. 7, 54ff. (July 28, Aug. 11-18, 1921.)

No. 35. Recent literature on soda and sulphate pulps. Clarence J. West. Paper Trade J. 73, No. 16, 46ff.; No. 17, 42ff. (October 20-27, 1921.)

Bibliography of current paper trade literature. Appears monthly in Paper Makers' Mo. J.

Giessler, A. Literature of the pulp and paper industry. Technical part. Third quarter, 1920. Papier-Ztg. 46, No. 32,

1378-9; No. 33, 1411; No. 35, 1466; No. 36, 1496 (1921). First quarter, 1921. Zellstoff und Papier 1, No. 1, 28-31; No. 3, 88-91 (April, June, 1921).

Herzberg, W. Papers from the Royal Testing Laboratory, Section on paper testing, arranged according to title. (1914-1920). Papierfabr. 19, No. 14, 317 (Apr. 8, 1921).

Patent Office (English). A paper bibliography. Contents of the Patent Office library. World's Paper Trade Rev. 76, 424-428, 520-526, 606-610, 688-690 (1921).

Schwalbe, C. G. Literature of the pulp and paper industry. Chemical part. Third quarter, 1920. Wochbl. Papierfabr. 52, No. 1, 20-21; No. 3, 167-9; No. 5, 325-6; No. 7, 484-6 (Jan. 8-Feb. 19, 1921). Fourth quarter, 1921. Wochbl. Papierfabr. 52, No. 15, 1137-8; No. 18, 1382-4; No. 21, 1626-7; No. 22, 1766-7; No. 28, 2268-9; No. 31, 2491-3, No. 33, 2659-61 (Apr. 16, May 7, 28, June 4, July 16, Aug. 6, 20, 1921). First quarter, 1921. Zellstoff und Papier 1, No. 3, 77-80; No. 4, 106-108 (June, July, 1921). Second and third quarters, 1921. Zellstoff und Papier 1, No. 9, 261-274 (Dec., 1921).

West, Clarence J. Bibliography of papermaking for 1920. Paper 28, No. 7, 164ff. (Apr. 20, 1921.)

West, Clarence J. Report of committee on bibliography. Paper 28, No. 7, 26-28 (Apr. 20, 1921). Tech. Assoc. Papers IV, 81-84 (1921). Special Libraries 12, 6-7 (Jan., 1921).

Cellulose

[This section does not include all the scientific work on cellulose reported during the year 1921.]

Becker, Ernst. Identification of oxycellulose by its barium compound. Zellstoff u. Papier 1, No. 1, 5-7 (Apr., 1921); C. A. 15, 3394.

Freudenberg, K. Cellulose. Berichte deutsche chem. Gesell. 54B, 767-772 (1921); C. A. 15, 2721.

Harding, Watson G. Experiments on wood cellulose. J. Phys. Chem. 25, 201-203 (1921); C. A. 15, 1809.

Herzog, R. O. Molecular composition of fibers. Umschau 25, No. 5 (Jan. 29, 1921).

Hess, K. The decomposition of cellulose. Z. angew. Chem. 34, 49-51 (1921).

Hess, K., and **Messmer, E.** The asymmetric synthesis of cellulose and the influence upon the rotation of carbohydrates of copper hydroxide ammonia. Ber. 54B, 834-841 (1921); C. A. 15, 2721.

Heuser, E. Advances in cellulose chemistry. Paper 27, No. 18, 17-21; No. 19, 15-17; No. 20, 22-23 (Jan. 5, 12, 19, 1921).

Hibbert, Harold. Chemistry of cellulose. I. Constitution of cellulose. J. Ind. Eng. Chem. 13, 256-260; 334-342 (1921); C. A. 15, 1990.

Johnsen, Bjarne. Estimation of cellulose in wood. J. Ind. Eng. Chem. 13, 358-360 (1921); C. A. 15, 1991.

Klason, P. Cellulose content of spruce wood. Svensk Pappers Tidning 24, 7 (1921); C. A. 15, 1991.

Klason, P. Cellulose content of pine wood. Bellstaffchemische Abhandlungen 1, No. 5, 105-114 (Jan.-Feb., 1921); C. A. 15, 2722.

Lenze, F., Pleus, B., and **Müller, J.** Wood cellulose. J. prakt. Chem. n. s., 101, No. 7, 213 (1920-1921); abstracted in Paper 28, No. 10, 27-29, 40 (May 11, 1921); C. A. 15, 1620.

Minor, Jesse E. Cellulose mucilage. J. Ind. Eng. Chem. 13, 131-133 (Feb., 1921); C. A. 15, 1212.

Monier-Williams, G. W. Hydrolysis of cotton cellulose. J. Chem. Soc. 119, 803-805 (1921); C. A. 15, 2982.

Ost, H., and **Bretschneider, R.** Are hydrocelluloses uniform substances? Z. angew. Chem. 34, 422-423 (1921); C. A. 15, 3742.

Pictet, A., and **Sarasin, J.** Distillation of cellulose and starch under reduced pressure. Paper 28, No. 6, 25-28 (Apr. 13, 1921).

Pringsheim, Hans. Oxy- and hydrocellulose. Cellulosechem. 2, No. 5, 57-61 (1921); C. A. 15, 2721.

Prosiegel, R. Acetolytic decomposition products of cellulose. Zellstoffchem. Abhandlungen 1, No. 1, 2 (1920): Paper 28, No. 7, 86-98 (Apr. 20, 1921).

Schwalbe, Carl G., and **Becker, E.** Behavior of incrustations of cellulose upon treatment with mercerizing liquor. Zellstoff u. Papier 1, 93-94 (1921); C. A. 15, 3391.

Schwalbe, C. G., and **Becker, E.** Chemical composition of wood pulp. Zellstoffchemische Abhandlungen 1, 45-52 (1920); Paper 27, No. 25, 20-23, 32 (Feb. 23, 1921).

Schwalbe, C. G., and **Becker, E.** Differentiation of oxy- and hydrocellulose by titration. Ber. 54 B, 545-550 (1921); C. A. 15, 2721.

Schwalbe, C. G., and **Becker, E.** Splitting off of furfural, alkali-solubility and reduction capacity of oxycellulose. Zellstoff u. Papier 1, 100-103 (1921); C. A. 15, 3743.

Uyeda, Y. Studies on bast fibers, II. Cellulose from bast fibers. J. Ind. Eng. Chem. 13, No. 2, 141-143 (Feb., 1921).

West, C. J. Determination of α, β, and δ-cellulose. Paper 28, No. 14, 19-20; No. 15, 21-22 (June 8, 15, 1921).

West, C. J. New reagents for cellulose. Paper 27, No. 19, 18 (Jan. 12, 1921).

West, C. J. Recent work on the constitution of cellulose. Paper 28, No. 11, 26-27 (May 18, 1921); C. A. 15, 2982.

Williams, H. E. Thiocyanates as solvents for cellulose. J. Soc. Chem. Ind. 40, 221-224T (1921); Pulp Paper Mag. Can. 19, No. 51, 1277-1281 (Dec. 22, 1921); Paper 29, No. 9, 9-14 (Nov. 2, 1921); abstracts in Paper Trade J. 73, No. 24, 48-49 (Dec. 15, 1921); Papier-Ztg. 46, No. 141, 4805 (Dec. 24, 1921).

Wise, Louis E. Requirements for a monograph on the chemistry of cellulose. Science, n. s. 54, No. 1413, 479-482 (Nov. 18, 1921); Paper 29, No. 15, 26-29 (Dec. 14, 1921).

Wohl, A., and **Blumrich, K.** Action of dilute mineral acids on cellulose. Z. angew. Chem. 34, No. 5, 17 (1921); C. A. 15, 1212.

Wohl, A., and **Krull, H.** Saccharification of cellulose. Cellulosechem. 2, 1-7 (1921); C. A. 15, 3743.

Lignin

Beckmann, Ernst, Liesche, Otto and **Lehmann, Fritz.** Lignin from rye straw. Z. angew. Chem. 34, 285-288 (1921); C. A. 15, 3629.

Crocker, Ernest C. Study of the significance of lignin color reactions. J. Ind. Eng. Chem. 13, No. 7, 625-627 (July, 1921); Paper 28, No. 26, 22-23, 32 (Aug. 31, 1921); C. A. 15, 3298.

Fuchs, Walter. Lignin and the sulphite cooking process. Ber. 54B, 484-490 (1921); C. A. 15, 1809.

Heuser, Emil. Determination of lignin. Paper 27, No. 23, 24-26; No. 24, 17-19, 34 (Feb. 9, 16, 1921).

Heuser, E., Roesch, Hans, and **Gunkel, L.** The formation of Oxalic acid from sulphite liquor and from lignin. Cellulosechem. 2, No. 2, 13-19 (Feb. 25, 1921); C. A. 15, 2983.

Heuser, E., and **Wenzel, Guido.** Comparative determination of lignin in pulp. Papierfabr. 19, No. 42, 1177-1184, (Oct. 21, 1921).

(To be continued)

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NEW YORK IMPORTS

WEEK ENDING APRIL 15, 1922

SUMMARY

News Print .....9,314 rolls, 220 pgs., 60 cs.
Packing Paper.....1,022 rolls, 371 bls.
Wrapping Paper.....784 bls., 1,226 rolls.
Printing Paper.....69 cs., 66 bls., 41 rolls.
Cigarette Paper.....78 cs.
Wall Paper.....15 bls. 1,291 rolls.
Hangings.....36 bls., 9 cs.
Cellophone Paper.....47 cs.
Blue Print Paper.....121 cs.
Drawing Paper.....38 cs.
Photo Paper.....49 cs.
Surface Coated Paper.....1 cs.
Writing Paper.....6 cs.
Filter Paper.....58 cs.
Miscellaneous Paper....414 bls., 2,229 rolls, 95 cs.

CIGARETTE PAPER.

British American Tobacco Co., Cedric, Liverpool, 32 cs.
British American Tobacco Co., Pannonia, Liverpool, 37 cs.
H. Reeve Angel & Co., Conejos, Hango, 9 cs.

WALL PAPER.

A. Murphy & Co., Maine, London, 7 bls.
A. C. Dodman, Jr., & Co., by same, 5 bls.
Prager Co., Huronian, Antwerp, 827 rolls.
A. Murphy & Co., Cedric, Liverpool, 3 bls.
Prager Co., Finland, Antwerp, 464 rolls.

PAPER HANGING.

W. H. S. Lloyd & Co., Ninian, London, 9 bls.
W. H. S. Lloyd & Co., by same, 1 cs.
A. C. Dodman, Jr., & Co., Cedric, Liverpool, 6 bls.
W. H. S. Lloyd & Co., Maine, London, 21 bls.
W. H. S. Lloyd & Co., by same, 8 cs.

CELLOPHONE PAPER.

Birn & Wachenheim, La Bourdonnais, Havre, 47 cs.

BLUE PRINT PAPER.

Keuffel & Esser, Mt. Clay, Hamburg, 121 cs.

DRAWING PAPER.

Keuffel & Esser, Mt. Clay, Hamburg, 38 cs.

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Gevaert Co. of America, Finland, Antwerp, 34 cs.
Gevaert Co. of America, Huronian, Antwerp, 15 cs.

SURFACE COATED PAPER.

Defender Photo Supply Co., Huronian, Antwerp, 1 cs.

WRITING PAPER.

Defiance Manf'g Co., Providence, Marseilles, 6 cs.

FILTER PAPER.

E. Fougera & Co., Homeric, Bordeaux, 54 cs.
E. H. Sergeant & Co., Stockholm, Guthenburg, 4 cs.

PRINTING PAPER.

M. O'Meara Co., West Inskip, Rotterdam, 9 bls.
W. F. Ethrington & Co., Algeria, Glasgow, 44 cs.
White, Burbank Paper Co., by same, 3 cs.
Allied Forwarding & Shipping Co., Morristown, Hamburg, 41 rolls.
Allied Forwarding & Shipping Co., by same, 57 bls.
Oxford University Press, Pannonia, Liverpool, 6 cs.
B. F. Drakenfeld & Co., Cedric, Liverpool, 16 cs.

NEWS PRINT.

Haring Paper Corp., Idefjord, Brenik, 630 rolls.
New York American, Eastern Coast, Norrkoping, 1,249 rolls.
New York American, Salborg, Hullstanick, 3.473 rolls.
Hudson Trading Co., Bayern, Hamburg, 104 rolls.
Hudson Trading Co., America, Bremen, 169 rolls.
Irving Nat'l Bank, Conejos, Hango, 220 pgs.
Irving Nat'l Bank, by same, 1,987 rolls.
N. Y. Tribune, by same, 190 rolls.
Pulp & Paper Trading Co., by same, 305 rolls.
H. Reeve Angel & Co., by same, 461 rolls.
C. B. Hewitt & Bros., by same, 104 rolls.
Paper House of Penna, by same, 42 rolls.
Virginia Paper Co., by same, 224 rolls.
Frank A. Munsey & Co., by same, 409 rolls.
Agar Berusson Corp., Morristown, Hamburg, 55 rolls.
Agar Berusson Corp., by same, 60 cs.

PACKING PAPER.

Republic Bag & Paper Co., Morristown, Hamburg, 720 rolls.
M. O'Meara Co., West Inskip, Rotterdam, 42 bls.
Merchants Bank of Rochester, N. Y., Idefjord, Frederickstad, 76 bls.
Merchants Bank of Rochester, N. Y., by same, 93 rolls.
Irving Nat'l Bank, by same, 209 rolls.
Irving Nat'l Bank, by same, 253 bls.

WRAPPING PAPER.

Hudson Trading Co., Idefjord, Trondhjem, 417 bls.
Int'l Acceptance Bank, by same, 1,205 rolls.
Int'l Acceptance Bank, by same, 356 bls.
Wilkinson Bros. & Co., Inc., by same, 11 bls.
Wilkinson Bros. & Co., Inc., by same, 21 rolls.

PAPER.

C. K. MacAlpine, Stockholm, Gothenburg, 4 bls.
C. K. MacAlpine, by same, 559 rolls.
Nichrugge & Day, by same, 15 bls.
C. F. Hubbs & Co., by same, 95 rolls
C. B. Richard & Co., Estonia, Danzig, 99 bls.
A. Bleyer & Co., Conejos, Stockholm, 170 bls.
A. Bleyer & Co., by same, 1,675 rolls.
Irving Nat'l Bank, by same, 19 bls.
J. B. Harris & Co., Inc., by same, 50 bls.
J. B. Harris & Co., Inc., by same, 57 bls.
P. C. Zuhlke, Huronian, Antwerp, 68 cs.
P. C. Zuhlke, Finland, Antwerp, 27 cs.

RAGS, BAGGING, ETC.

Irving Nat'l Bank, Finland, Antwerp, 42 bls. flax waste.
E. J. Keller Co., Inc., Ryndam, Rotterdam, 104 bls. rags.
E. J. Keller Co., Inc., by same, 116 bls. bagging.
Solomon Bros. & Co., C. de Messina, Geneva, 86 bls. cotton waste.
American Express Co., Chicago City, Bristol, 273 bls. rags.
Castle, Gottheil & Overton, W. Inskip, Rotterdam, 1 bl. rags.
F. P. Gaskell & Co., Morristown, Hamburg, 48 bls. rags.
Ladenburg, Thalman & Co., by same, 20 bls. rags.
Ladenburg, Thalman & Co., by same, 16 bls. flax waste.
Ladenburg, Thalman & Co., Pannonia, Liverpool, 6 bls. thread waste.
Mutnick Bros., by same, 50 bls. rags.
Stone Bros & Sherwin, by same, 48 bls. rags.
B. D. Kaplan & Co., by same, 278 bls. rags.
Irving Nat'l Bank, Cedric, Liverpool, 10 bls. bagging.
Lobertz, Mills Co., by same, 25 bls. paper stock. wood pulp boards, 10 tons.
M. O'Meara Co., E. Guide, Belfast, 25 bls. paper stock.
Castle, Gottheil & Overton, E. Dawn., Antwerp, 2 bls. rags.
Reis Co., E. Dawn, Rotterdam, 39 bls. thread waste.
E. J. Keller Co., Inc., Huronian, Antwerp, 60 bls. rags.

OLD ROPE.

Brown Bros. & Co., Idaho, Hull, 134 coils, 17 bls.
D. M. Hicks, Inc., Gracians, Leith, 95 coils.
First Nat'l Bank, C. de Messina, Genoa, 107 coils.
Brown Bros. & Co., Chicago City, Bristol, 137 coils.

WOOD FLOUR.

B. L. Soberski, Idefjord, Frederickstad, 2,757 bags.

WOOD PULP.

Lagerlof Trading Co., Conejos, Hango, 610 bales, 101 tons.
Irving Nat'l Bank, by same, 1,355 bales, 253 tons.
Whalen Pump & Paper Mills, Barrymore, Port Alice, B. C., 16,330 bales.
Castle, Gottheil & Overton, E. Dawn, Rotterdam, 874 bales, 195 tons.
American Wood Pulp Corp., by same, 541 bales, 111 tons.
Mechanics & Metals Nat'l Bank, Idefjord, Frederickstad, 1,000 bales.
Johaneson & Co., Eastern coast, Gothenburg, 1,300 bales, 203 tons.
C. L. Robinson, by same, 2,250 bales, 457 tons.
Fibre Case & Novelty Co., by same, 90 bls.

CHINA CLAY.

Naylor & Co., Inc., Wells City, Bristol, 15 cks.

CASEIN.

L. M. Duche & Sons, Vandyck, Buenos Aires, 834 bags.
Atterbury Bros., Crofton, Hull, 667 bags.
L. M. Duche & Sons, Bosmell, Buenos Aires, 1,851 bags.
J. A. & W. Bird & Co., by same, 910 bags.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 15, 1922

Dill & Collins, Northwestern Miller, London, 510 bls. waste paper.
American Express Co., by same, 152 coils old rope.
O. G. Hempstead & Co., by same, 127 bls. rags.
C. K. MacAlpine, Delaware, Gothenburg, 541 rolls paper.
C. K. MacAlpine, by same, 323 bls. paper.
E. J. Keller Co., Inc., Breedyk, Rotterdam, 204 bls. rags.
Irving Nat'l Bank, Conejos, Hango, 522 bls. pulp, 80 tons.
Irving Nat'l Bank, by same, 3,230 bls. pulp, 515 tons.
Lagerlof Trading Co., by same, 250 bls. pulp, 50 tons.
E. J. Keller Co., Inc., E. Dawn, Rotterdam, 948 bls. rags.
E. J. Keller Co., Inc., Morristown, Hamburg, 713 bls. rags.
Castle, Gottheil & Overton, Soestdyk, Rotterdam, 1,196 bls. rags.
Castle, Gottheil & Overton, Huronian, Antwerp, 325 bls. rags.
Castle, Gottheil & Overton, Ohio, Rouen, 542 bls. rags.
Castle, Gottheil & Overton, Siam City, Hamburg, 285 bls. pulp.

BALTIMORE IMPORTS

WEEK ENDING APRIL 15, 1922

E. J. Keller Co., Inc., Manhattan, Antwerp, 199 bls. rags.
E. J. Keller Co., Inc., Breedyk, Rotterdam, 326 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING APRIL 15, 1922

Hudson Trading Co., Einfeld, Hamburg, 19 rolls news print.
E. J. Keller Co., Inc., Edam, Rotterdam, 248 bls. rags.
E. J. Keller Co., Inc., by same, 354 bls. bagging.
Castle, Gottheil & Overton, by same, 575 bls. rags.
Castle, Gottheil & Overton, Missouri, Rouen, 340 bls. rags.

NORFOLK IMPORTS

WEEK ENDING APRIL 15, 1922

Irving Nat'l Bank, Conejos, Hango, 7,991 bls pulp, 1,483 tons.

(Continued on page 60)

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New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, April 19, 1922.

Conditions in the New York paper market have not altered appreciably since the week of the convention, although there is a constantly increasing activity in many lines. Taking into consideration the fact that the majority of the paper mills of the country are operating on the basis of orders received to somewhere between 65 and 80 per cent of their tonnage under normal conditions, and that this is being consumed nearly as fast as it is manufactured, it is only to be expected that when people once commence to stock up a little, the mills will automatically resume a 100 per cent basis of operation. Everywhere along the line, business is improving. Building, all over the country, and in New York in particular, is being resumed on a large scale, and such a movement inevitably creates a demand for paper and paper products. The cost of paper manufacturing has been liquidated to a point where there is but slim hope of further reduction, but it is generally agreed that when depleted stocks the country over are once replenished in normal, pre-war fashion, the mills will be kept busy and a renaissance of prosperity in the paper business will occur.

Whereas in the two years preceding 1921 the paper manufacturers were confronted with soaring prices, wages, production and raw material to meet demands that were ever increasing, prices and wages now appear to have struck rock bottom and raw material is rapidly approaching it. The readjustment period is practically over. Values have been righted and inventory losses written off. The stage is set for a natural and steady production for the balance of the present year.

The news print market continues to gain solidity, the greatly increased demand over this time last year rapidly depleting the mill stocks and tending to bring about capacity production to supply the market. The deleterious effect of the foreign invasion in the domestic news print market has been largely counteracted by one of the largest seasons of consumption known to the trade, and although no sizable profit may be anticipated at the present market price of the commodity, still there is no reason to believe that this business will not continue throughout the summer, thus enabling the manufacturers to stabilize their prices on a basis of 100 per cent output.

Although the prices quoted on book paper remain fairly constant, the general trend of the market on this branch is slow moving. Mills are increasing their output to a limited degree, but as yet the volume of business is not sufficient to warrant any drastic alterations in prices, nor even to admit of a normal profit under existing conditions. There is, however, the prevalent feeling that the book paper industry, along with the other kindred industries, is heading toward firmer ground slowly but surely.

The general hand-to-mouth policy in buying is keenly reflected in the fine paper market. Less expensive grades of sulphite bonds have been taking the place of the former demand for higher grade and more costly products, and even this type of business has been intermittent and ragged. There are ample evidences of progress, nevertheless, in that greater degree of confidence is beginning to be manifested on the part of buyers and some contracts have been renewed.

During the present period of inertia in the tissue market very little activity has been noted. Coming as an abrupt let-down after the abnormal demand of the first two months of this year, the existing season of quiet is not anticipated to be a lasting one. As soon as the demand has had an opportunity to catch up to the top-heavy supply, tissue should again register a forward movement.

Kraft continues to be in demand in regular quantities. No perceptible variations have taken place in the market prices although this product has been somewhat of a stabilizing factor in gross returns due to the fact that it was among the first to recover from the recent depression.

Board mills are far from capacity production, and many have not yet re-opened, but the prices on the commodity have remained fairly steady for some time, giving ground to the belief that conditions are becoming ameliorated. Folding boxboard is in most demand at the present time.

Mechanical Pulp

Supplies of ground wood pulp continue to accumulate at the various plants, but the demand is essentially light. The fact that there is but a slight variation in prices does not indicate firmness in the market. Imported pulp has been quoted at prices ranging between $32 and $36 with the domestic at $29 to $33.

Chemical Pulp

A slight decrease in price has been noted in the chemical pulp market during the past week, both as regards the imported and the domestic. No great revision is looked for, however, for some months to come. The isolation of distant points by reason of the high freight rates is an important element in maintaining the irregularity in this market, and the availability of foreign sulphite at competitive prices has caused some alarm to domestic manufacturers.

Old Rope and Bagging

A goodly number of inquiries continue to come in regarding these materials, but on the whole the market for old rope and bagging is inactive. The protracted period of close buying has stifled production in this market. A break is anticipated, however, in the early summer months.

Waste Paper

Waste paper merchants have been somewhat relieved by indications throughout the past week that point to a strengthening of the market. Strictly overissue news remains firm at 75 to 85 cents per cwt. f. o. b. New York, while strictly folded has been selling at the somewhat lower figure of 55 to 60 cents. Soft white No. 1 shavings together with some items of flat stock and new Manila envelope cuttings have been quoted at slightly higher prices, but the majority of old waste papers have either remained at a standstill or have exhibited a downward tendency.

Rags

High grade rag papers are moving very slowly, and the market is extremely spotty in that price fluctuations are chronic. Dealers are in doubt as to the reason for the little interest that exists as far as this market is concerned, but rag paper manufacturers feel that confidence is rapidly being restored which will lay a foundation for solid business.

Twine

Considerably better than this time last year, the twine and rope market gives evidences of regaining its old prosperity. General interest has been reawakened and twine is selling steadily.

Foresters to Meet at Syracuse

The annual Intercollegiate Association of Forestry Clubs convention and the meeting of the New York State Section of American Foresters, the Northeastern Retail Lumbermen's Association and several other allied organizations, will be held April 20-22 at the New York State College of Forestry, Syracuse University.

This combined meeting of Foresters, Lumbermen and scholastic interests in forestry will be unique and probably the largest of its kind ever held.

The dedication of "The Roads of Remembrance" will mark the beginning of a great aesthetic movement in highway beautification and will eventually become the largest and most comprehensive living memorial of trees ever erected to the soldiers of the World War.

Market Quotations

Paper Company Securities

New York Stock Exchange closing quotations April 18, 1922:

STOCKS.	BID.	ASKED.
American Writing Paper Company, pref.	33	36
International Paper Company, com.	46½	46½
International Paper Company, pref., stamped.	65½	66½
Union Bag & Paper Corporation	63	64

Because of the unusual conditions prevailing in the various markets quotations are more or less nominal.

Paper

F. o. b. Mill.

Ledgers	10.50	@	30.00
Bonds	8.50	@	55.00
Writings—			
Extra Superfine	14	@	25
Superfine	13	@	20
Tub Sized	10	@	16
Engine Sized	9.00	@	15.00
News—f. o. b. Mill—			
Rolls, contract	3.50	@	—
Rolls, transit	3.50	@	
Sheets	4.00	@	
Side Runs	3.25	@	3.50
Book, Cased—f. o. b. Mill			
S. & S. C.	6.70	@	7.50
M. F.	6.00	@	7.25
Coated and Enamel	8.00	@	10.00
Lithograph	8.00	@	10.00
Tissues—f. o. b. Mill			
White, No. 1	.75	@	.80
Colored	1.00	@	2.00
Anti-Tarnish	.75	@	.80
Silver Tissue	1.50	@	2.70
Manila	.75	@	.80
Kraft—f. o. b. Mill—			
No. 1 Domestic	7.00	@	7.50
No. 2 Domestic	5.75	@	6.50
Imported	5.75	@	6.00
Screenings	2.50	@	3.50
Manila—			
No. 1 Jute	8.50	@	9.00
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.50	@	5.50
No. 2 Wood	4.00	@	4.50
Butchers	4.25	@	4.75
Fiber Papers—			
No. 1 Fiber	6.00	@	6.25
No. 2 Fiber	5.25	@	5.50
Common Bogus	1.75	@	2.25
Card Middies	4.00	@	5.00
Boards—per ton—			
News	37.50	@	45.00
Straw	40.00	@	45.00
Chip	36.50	@	40.00
Binders' Board	60.00	@	70.00
Sgl. Mla. Ll.Chip	57.50	@	65.00
Wood Pulp	75.00	@	90.00
Container	65.00	@	70.00
Wax Paper—			
Self Sealing White 28 and 30 lb. basis	10.00	@	11.00
Waxed Tissue	1.40	@	1.60
Glassine—			
Bleached, basis 25 lbs.	12.75	@	13.25
Bleached, basis 20 lbs.	13.75	@	15.25

Mechanical Pulp

(Ex-Dock.)

No. 1 Imported	32.00	@	36.00

(F. o. b. Pulp Mills.)

No. 1 Domestic	29.00	@	33.00

Chemical Pulp

(Ex-Dock, Atlantic Ports.)

Sulphite (Imported)—			
Bleached	4.00	@	4.50
Easy Bleaching	2.85	@	3.25
No. 1 Strong unbleached	2.75	@	3.00
No. 2 Strong unbleached	2.25	@	2.75
No. 1 Kraft	2.50	@	3.00
Sulphate—			
Bleached	3.90	@	4.00

(F. o. b. Pulp Mill.)

Sulphite (Domestic)—			
Bleached	4.25	@	4.75
Strong unbl'chd.	2.60	@	3.00
Easy Bleaching Sulphite	2.60	@	3.25
News Sulphite	2.50	@	3.00
Mitscherlich	3.00	@	3.25
Kraft (Domestic)	2.50	@	3.00
Soda Bleached	3.50	@	3.75

Domestic Rags

New Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—			
New White, No.1	9.75	@	10.00
New White, No. 2	6.00	@	6.50
Silesias, No. 1	6.00	@	6.50
New Unbleached	8.50	@	9.00
Washables	3.25	@	3.50
Fancy	4.50	@	5.00
Cottons—according to Grades—			
Blue Overall	5.75	@	6.00
New Blue	4.00	@	4.50
New Black Soft	3.25	@	3.50
New Light Seconds	2.75	@	3.00
O. D. Khaki Cuttings	3.25	@	3.50
Men's Corduroy	2.50	@	2.75
New Canvas	6.50	@	7.00
New Black Mixed Old	2.75	@	3.25
White, No. 1—			
Repacked	5.75		nominal
Miscellaneous	4.50		nominal
White No. 2—			
Repacked	3.00		nominal
Miscellaneous	2.25		nominal
St. Soiled White	1.50		nominal
Thirds and Blues—			
Repacked	1.50		nominal
Miscellaneous	1.10		nominal
Black stockings	2.25		nominal
Cloth Strippings	1.00		nominal
No. 1	1.00		nominal
No. 2	.90		nominal
No. 3	.70		nominal
No. 4	.70		nominal
No. 5A	.90		nominal

Foreign Rags

New Light Silesias	6.00		nominal
Light Flannelettes	6.75		nominal
Unbl'chd Cottons	7.50		nominal
New White Cuttings	9.50		nominal
New Light Oxfords	6.00		nominal
New Light Prints	4.50		nominal
New Mixed Cuttings	2.00	@	2.50
New Dark Cuttings	1.90	@	2.10
No. 1 White Linens	9.00	@	11.00
No. 2 White Linens	6.50		nominal
No. 3 White Linens	5.00		nominal
No. 4 White Linens	3.50		nominal
Old Extra Light Prints	2.00		nominal
Ord. Light Prints	1.75		nominal
Med. Light Prints	1.50		nominal
Dutch Blue Cottons	1.85		nominal
German Blue Cottons	1.50		nominal
Ger. Blue Linens	3.50		nominal
Checks and Blues	1.50		nominal
Dark Cottons	1.00		nominal
Shoppery	.85	@	.90
French Blues	2.00		nominal

Bagging

Prices to Mill f. o. b. N. Y.

Gunny No. 1—			
Foreign	.75	@	.80
Domestic	.75	@	.80
Wool, Tares, light	1.20	@	1.30
Wool, Tares, heavy	1.15	@	1.25
Bright Bagging	1.00	@	1.10
No. 1 Scrap	.80	@	.90
Sound Bagging	.80	@	.90
Manila Rope—			
Foreign	4.25	@	4.50
Domestic	4.50	@	4.75
New Bu. Cut	1.80	@	1.90
Hessian Jute Threads—			
Foreign	4.25	@	4.50
Domestic	4.00	@	4.25
Mixed Strings	.80	@	.90

Twines

Cotton— (F. o. b. Mill)			
No. 1	32	@	34
No. 2	30	@	32
No. 3	26	@	28
India, No. 6 basis—			
Light	17	@	18
Dark	17	@	18
B. C., 18 Basis	38	@	40
A. B. Italian, 18 Basis	50	@	60
Finished Jute—			
Light, 18 basis	25	@	26
Dark, 18 basis	26	@	28
Jute Wrapping, 3-6 Ply—			
No. 1	22	@	23
No. 2	30	@	31
Tube Rope—			
4-ply and larger	14	@	16
Fine Tube Yarn—			
5-ply and larger	18	@	20
4-ply	19	@	21
3-ply	20	@	22
Unfinished India—			
Basis	15	@	16
Paper Makers Twine			
Balls	12	@	14
Box Twine, 2-3 ply	16	@	17
Jute Rope	12	@	14
Amer. Hemp, 6	32	@	34
Sisal Hay Rope—			
No. 1 Basis	14	@	16
No. 2 Basis	12	@	14
Sisal Lath Yarn—			
No. 1	13	@	14
No. 2	10	@	12
Manila Rope	17	@	18

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, White, No. 1	3.75	@	4.00
Hard, White, No. 2	3.00	@	3.25
Soft, White No. 1	3.10	@	3.25
Flat Stock—			
Stitchless	1.50	@	1.60
Over Issue Mag.	1.50	@	1.60
Solid Flat Book	1.30	@	1.50
Crumpled No. 1	1.05	@	1.15
Solid Book Ledger	2.00	@	2.25
Ledger Stock	1.55	@	1.65
No. 1 White News	1.60	@	1.65
New B. B. Chips	.47½	@	.52½
Manilas—			
New Env. Cut	2.90	@	3.00
New Cut No. 1	1.80	@	2.00
Extra No. 1, Old	1.60	@	1.70
Print	.80	@	.90
Container Board	.65	@	.75
Bogus Wrapper	.55	@	.60
Old Krafts, machine compressed Bales	1.75	@	1.80
News—			
Strictly Overissue	.75	@	.85
Strictly Folded	.55	@	.60
No. 1 Mixed Paper	.47½	@	.50
Common Paper	.35	@	.40

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

F. o. b. Mill.

All Rag Bond	35	@	40
No. 1 Rag Bond	30	@	35
No. 2 Rag Bond	18	@	20
Water Marked Sulphite	10	@	14
Sulphite Bond	9	@	12
Sulphite Ledger	12	@	13
Superfine Writing	18	@	24
No. 1 Fine Writing	14	@	22
No. 2 Fine Writing	12	@	20
No. 3 Fine Writing	8	@	12
No. 1 M. F. Book	6¼	@	7
No. 1 S. & S. C. Book	6¼	@	7½
Coated Book	8¼	@	10¾
Coated Label	8½	@	10½
News—Rolls, mill	3½	@	4½
News—Sheets, mill	3¾	@	4¼
No. 1 Manila	5½	@	6
No. 1 Fiber	5	@	—
No. 2 Manila	4½	@	—
Butchers' Manila	4	@	—
No. 1 Kraft	7	@	—
No. 2 Kraft	6	@	—
Wood Tag Boards	4	@	—
Screenings	2½	@	—
Boards, per ton—			
Plain Chip	35.00	@	40.00
Solid News	40.00	@	45.00
Manila Lined Chip	45.00	@	52.50
Container Line—			
85 Test	60.00	@	65.00
100 Test	65.00	@	70.00
Binders' Board	75.00	@	—
Solid Wood Pulp	80.00	@	90.00
Straw Board	35.00	@	40.00
Filled Pulp Board	55.00	@	60.00

Old Papers

Shavings—			
No. 1 Hard White	3.00	@	3.25
No. 1 Soft Shav.	2.50	@	2.75
No. 1 Mixed	1.00	@	1.10
No. 2 Mixed	1.00	@	1.10
White Envel. Cuttings	3.25	@	3.50
Ledgers and Writings	1.59	@	1.75
Solid Books	1.25	@	1.50
No. 1 Books, light	.90	@	1.00
Blanks	1.75	@	2.00
Ex. No. 1 Manila	1.90	@	2.00
Manila Envelope Cuttings	2.25	@	2.35
No. 1 Manilas	1.20	@	1.30
Folders News (over issue)	1.00	@	1.10
Old Newspaper	.80	@	.85
Mixed Papers	.70	@	.75
Straw Clippings	.70	@	.75
Binders Clippings	.70	@	.75
Kraft	1.75	@	2.00
New Kraft Cuts	2.25	@	2.30
Roofing Stock, f.o.b. Chicago, Net Cash—			
No. 1	25.00	@	
No. 2	23.00	@	
No. 3	21.00	@	
No. 4	21.00	@	

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.10	@	.60
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.06	@	.09
Book, S. S. & C.	.08	@	.15
Book, Coated	.08	@	.15
Coated Lithograph	.10	@	.15
Label	.08	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.08½
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.08½
No. 1 Kraft	—	@	.09½
Common Bogus	.02½	@	.03
Straw Board	35.00	@	45.00
News Board	32.50	@	35.00
Chip Board	27.50	@	32.00
Wood Pulp Board	90.00	@	100.00

(Carload Lots)

Binder Boards—			
Per ton	$65.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	48.00	@	50.00
Slaters	54.00	@	56.00
Best Tarred, 1-ply (per roll)	1.35	@	1.50
Best Tarred, 2-ply (per roll)	1.00	@	1.15
Best Tarred, 3-ply	1.50	@	1.65

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	.75	@	—
Domestic	.70	@	—
Manila Rope	4.00	@	4.10
Sisal Rope	.75	@	.80
Mixed Rope	.75	@	.80
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy	2.50	@	2.75
Mixed Strings	.75	@	.80
No. 1, New Lt. Burlap	.75	@	.80
New Burlap Cuttings	1.75	@	2.10

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	3.50	@	3.75
No. 2, Hard White	3.00	@	3.25
No. 1 Soft White	3.00	@	3.25
No. 2 Soft White	1.75	@	2.00
No. 1 Mixed	1.50	@	1.75
No. 2 Mixed	1.00	@	1.25

(Continued on page 62)

Imports and Exports of Paper and Paper Stock

(Continued from page 56)

BOSTON IMPORTS

WEEK ENDING APRIL 15, 1922.

G. M. Graves Co., Rhode Island, Glasgow, 85 bls. paper stock.
Castle, Gottheil & Overton, Victorious, Rotterdam, 101 bls. pulp.
Castle, Gottheil & Overton, Soestdyk, Rotterdam, 507 bls. pulp.
Johaneson & Co., E. Coast, Gothenburg, 2,324 bls. pulp, 405 tons.
Scandinavian American Trading Co., by same, 3,024 bls. pulp, 608 tons.
C. L. Robinson, by same, 1,345 bls., 203 tons.
Perkins, Goodwin & Co., by same, 2,275 bls., 462 tons.
The Borregaard Co., by same, 1,000 bls. pulp, 203 tons.
Irving Nat'l Bank, Conejos, Hango, 3,986 bls. pulp, 661 tons.
Kalbfleisch Corp., Bosmell, Buenos Aires, 1,000 bgs. casein.
J. A. & W. Bird & Co., by same, 1,942 bgs. Casein.

PAPER STOCK.

First Nat'l Bank, Mississippi, Antwerp, 333 bales rags.
Brown Bros. & Co., Ltd., by same, 175 bags.
International Purchasing Co., by same, 419 coils manila rope.
Train, Smith Co., by same, 126 bs. rags.
Geo. W. Wheelwright & Co., by same, 290 bs. waste paper.
E. Butterworth & Co., Inc., by same, 45 bs. rope.
International Purchasing Co., Nitonian, Liverpool, 92 coils rope.
A. Katzenstein & Co., by same, 136 bs. new cuttings.
International Purchasing Co., Winnfredian, Liverpool, 54 coils manila rope.
E. Butterworth & Co., Worcester, Antwerp, 20 bs. new cuttings.
E. Butterworth, Wincote, Belfast, 60 bs. flax waste.

HIDE CUTTINGS.

E. F. Russ Co., Winifredian, Liverpool, 295 bgs.
E. F. Russ Co., Nitonian, Liverpool, 225 bgs.

CLEVELAND IMPORTS

WEEK ENDING APRIL 15, 1922.

Cleveland-Akron Bag Co., Rhode Island, Glasgow, 153 coils old rope.

GALVESTON IMPORTS

WEEK ENDING APRIL 15, 1922.

Hudson Trading Co., Waxahatchie, Hamburg, 20 rolls news print.

SOME INCREASE IN PHILADELPHIA

(Continued from page 22)

purchased and in the fall, the firm contemplates the erection thereon of an extension.

The H. J. Fleming Paper Company, 1017 North Front street, is installing machinery for the production of its new line of barbers' headrest rolls made to order.

The office of the Angier Mills of which William E. Lindblad is the Philadelphia representative, has been removed from 4425 Clarissa street, to 2027 North Carlisle street.

The A. P. W. Paper Company, whose Philadelphia office long was located at number 48, Front street, has removed it to Room 606 Victory Building, 1001 Chestnut street. A warehouse is maintained in Camden.

Norman Pickell has been added to the Philadelphia sales force of Edward R. Grossman, 127 5th street.

The Commissioners of Navigation, at its meeting during the week, granted a license to the Chester Paper Company, to build a bulkhead in front of its property at Chester. The bulkhead is the preliminary steps toward the erection of the addition to the Scott Paper Company's plant in Chester.

Owing to the repairing of the machinery of the Moorhouse Paper Company, but one of the units in the plant at 2655 Bridge street, is in operation.

Change at Union Mills Paper Mfg. Co.

NEW HOPE, Pa., April 17, 1922.—In recognition of more than 35 years of active service as general superintendent of the Union Mills Paper Manufacturing Company, Daniel B. Oblinger has been relieved from the duties of that position, and has assumed those of general manager and purchasing agent, still retaining his office at the mill. The company officials consider themselves fortunate in securing Ralph G. Simonton, formerly general superintendent for Hollingsworth & Vose Company, West Groton, Mass., to succeed Mr. Oblinger at the Union Mills.

Although Mr. Simonton has had nearly 20 years' experience in Manila rope mills he is one of the youngest superintendents in the industry, having been employed as superintendent of William Mann Company, Lambertville, N. J., previous to going with the Hollingsworth & Vose Company.

Paper Worker Murdered at DeGrasse Mill

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., April 17, 1922.—A murder in the wet room of the DeGrasse Paper Company at Pyrites, Saturday has deprived the company of the services of two tower foremen who have been employed by the company for many years. Phillip Saber was killed by a blow on the head struck by Martin Kuc who admitted the act and who is now in the county jail at Canton awaiting the action of the grand jury on a charge of murder in the first degree.

The two men were brothers-in-law and were quarreling over money matters. They remained at the mill at the noon hour and it was then that the quarrel was renewed and the blow struck. Kuc explained that he thought Saber was drawing a revolver and that he quickly seized an iron bar and struck him. The blow caused instant death. Kuc then walked to the office of the superintendent and informed him of what had happened. The district attorney and sheriff were notified and the man gave himself into custody. Both men were natives of Poland.

To Go With Champion Coated Paper Co.

[FROM OUR REGULAR CORRESPONDENT.]

LINCOLN, Me., April 17, 1922.—A very pleasant surprise, in the form of a handsome gold watch, was presented to the retiring superintendent of the Lincoln plant of the Eastern Manufacturing Company recently by the employees of the company. The presentation was gracefully made by H. R. Sawtell, who voiced the admiration felt by all for Mr. Karls. Although taken by surprise, Mr. Karls rose to the occasion with appropriate thanks and appreciation.

Mr. Karls has accepted a position with the Champion Coated Paper Company, of Hamilton, Ohio, which has the largest coating mill in the world, covering several acres. In his younger days he worked for this company as a common hand and now is returning to accept a much more important position as one of the officials.

Bastrop Pulp & Paper Company

The capital stock of the Bastrop Pulp and Paper Company, Bastrop, La., is now $1,000,000 all paid in. The capacity of the mill is 60 tons per day of twenty-four hours. The wood limits consist of 1,500,000 cords, standing timber within radius of 25 miles of the mill. The wood room capacity is 125 cords in 10 hours. The mill is electrically equipped throughout. The power plant consists of 3,000 boiler H. P. and 1,250 K. W. Turbine generator. The fuel supplied is natural gas from wells near the plant. The water supply is obtained from two artesian wells flowing 3,000 gallons per minute. The plant is served by both the Missouri Pacific and the A. & L. M. Railways. The officers of the company are: L. H. Fox, president and treasurer; R. J. Cullen, vice-president and manager; Jas. F. Cleary, second vice-president; A. L. Berger, secretary.

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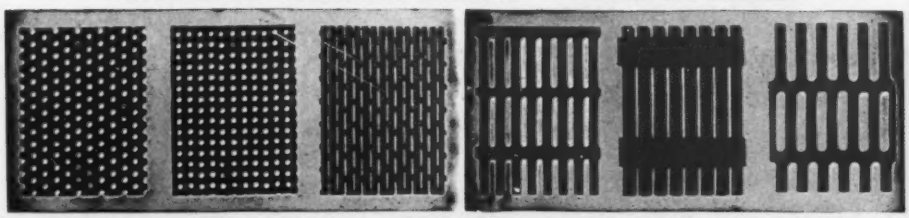

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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, April 19, 1922.

BLEACHING POWDER.—Prices on domestic bleaching powder remain practically constant at 1.65 to 1.75 cents per pound. The demand is still slack despite the increased consumption on the part of the mills at this time of the year. This condition may probably be traced indirectly to the textile strikes.

BLANC FIXE.—Although the demand for blanc fixe pulp and powdered blanc fixe is steadily increasing, its movement is relatively light. The comparatively small demand from the paper mills holds the pulp prices between $40 and $50 a ton, and the powdered blanc fixe from 3.50 to 3.75 cents per pound. No drastic break is anticipated in the immediate future.

CASEIN.—A considerably increased demand has strengthened the market for this product in view of the shortage of available supply. Argentine is firm at 10.00 cents a pound.

CAUSTIC SODA.—Due to the strengthening it received at the hands of both the increased export demand and the anticipated increase for the domestic mills, the caustic soda spot market is considerably firmer and the product is now quoted at 3.25 cents a pound contract. Dealers predict a greatly augmented increase in local consumption during the balance of 1922.

CHINA CLAY.—The movement of the China clay market, is encouraging in that there is a noticeably stronger demand from the mills. Importers of the English clays do not expect a decided change before July 1 at least, the prices having ranged from $13 to $18 a net ton. Domestic unwashed has been quoted at $6 to $8, and the washed sells at $8 to $10.

LIQUID CHLORINE.—Quoted at 5.50 to 7.00 cents a pound in cylinders of 100 pounds, liquid chlorine has remained steadily in demand by consumers, many of whom obtain a reduction on this figure by purchasing large quantities. The demand has recently been increasing.

ROSIN.—Although no great revision is expected to be forthcoming for some time, the rosin market has shown signs of market improvement. Foreign demand is considerably stronger, while the lower price of $5.20 per barrel of 280 pounds has been quoted for grades E, F and G, at New York.

SALTCAKE.—The continuously increased demand from the glass industry as well as some improvement on the part of the paper mills has materially affected the volume and activity of the saltcake market. The movement is more progressive, chromecake now being listed at $18 a ton and acidcake at $20 to $21.

SATIN WHITE.—Due to the uncertainty regarding the stability of prices in this market, stocks are being kept exceptionally low and are, in the main, replenished by small lots. Hence the demand for satin white is slight, but steady, 2.10 cents a pound being quoted at New York.

SULPHUR.—Due largely to the advantageous rates which may be secured by water shipments, the brimstone market has shown signs of increased activity. Quotations on sulphur range between $15 and $16 per net ton at the mines, while f. o. b. New York prices are still in the neighborhood of $18 and $19.

STARCH.—Exhibiting a gradual improvement, the starch market has been slightly active. Barrels are quoted at 2.50 cents a pound in carload quantities, and bags have been selling for 2.22.

SULPHATE OF ALUMINA.—The consumption of sulphate of alumina has not altered in any marked degree although a feeling of firmness is generally apparent. The iron free is still being quoted between 2.00 and 2.25 cents per pound while the commercial grade has remained constant at 1.40.

SODA ASH.—Quoted at 1.50 cents a pound, in bags, at the plant, soda ash continues to remain quiet.

TALC.—This product is now selling at the somewhat lower figure of $16 to $18 per ton.

Market Quotations

(*Continued from page 59*)

Solid Ledger Stock.	2.00	@	2.25
Writing Paper....	1.80	@	2.00
No. 1 Books, heavy.	1.50	@	1.75
No. 2 Books, light.	1.25	@	1.50
No. 1 New Manila.	2.75	@	3.00
No. 1 Old Manila..	1.50	@	1.75
Container Manila..	1.00	@	1.10
Old Kraft	1.90	@	2.00
Overissue News....	.75	@	.80
Old Newspaper....	.50	@	.60
No. 1 Mixed Paper.	.45	@	.50
Common Paper....	.40	@	.50
Straw Board, Chip.	.40	@	.45
Binders' Bd. Chip.	.40	@	.45

Domestic Rags—New.
Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.09¼	@	.09¾
New White, No. 2	.05	@	.06
Silesias, No. 1..	.04½	@	.05
New Unbleached.	.08½	@	.08¾
Washables	.03	@	.03½
Fancy	.04½	@	.05
Cottons—according to grades—			
Blue Overall	.04	@	.04½
New Blue	.02	@	.02¼
New Black Soft.	.03	@	.03¼
New Light Seconds	.02	@	.02¼
Khaki Cuttings...	.02¾	@	.03¼
Corduroy	.02	@	.02½
New Canvas	.07	@	.07½
New Black Mixed	2.75	@	3.00
Old White, No. 1—			
Repacked	.06	@	.06½
Miscellaneous ...	.04½	@	.04¾
White, No. 2—			
Repacked	.03	@	.03¼
Miscellaneous ...	.02½	@	.02¾
Thirds and Blues—			
Repacked	1.65	@	1.80
Miscellaneous ...	1.40	@	1.55
Black stockings...	1.75	@	2.25
Roofing Stock—			
No. 1.....	.90	@	1.00
No. 2.....	.80	@	.90
No. 3.....	.70	@	.80
No. 4.....	.70	@	.80
No. 5A.....	nominal		
B.....	nominal		
C.....	nominal		

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.07	@	—
Ledgers	.09	@	.09½
Writings	.04½	@	.05
Superfine	.12	@	.13
Fine	.10	@	.10½
Books, S. & S. C...	.07	@	.07½
Books, M. F.....	—	@	.06½
Books, coated	.07	@	.07½
Label	—	@	.10
News sheets	3.75	@	
News, rolls	.05	@	
Manilas—			
No. 1 Manila....$6.75		@	
No. 1 Fibre.....	8.00	@	
No. 1 Jute.....	8.50	@	9.00
Kraft Wrapping....	7.00	@	
Common Bogus....	3.00	@	

Boards

(Per Ton Destination)

Chip	$35.00	@	
News, Vat Lined...	37.50	@	39.00
Wood, Vat Lined..	47.50	@	
Filled News Board.	37.50	@	
Solid News Board..	42.50	@	45.00
S. Manila Chip....	52.50	@	
Pat. Coated	70.00	@	75.00

Old Papers

Shavings—			
No. 1 Hard White	.04½	@	.05
No. 1 Soft White	.03	@	—
No. 1 Mixed....	—	@	.08
Ledgers & Writings.	.03	@	—
Solid Books		@	$1.35
Blanks	$1.30	@	$1.45
No. 2 Books Light.	.60	@	.70
Folded News, over issues $11.50		@	12.50
Mixed paper.....	.50	@	
Gunny Bagging ...	.80	@	
Manila Rope	.04	@	.04½
Common Paper.....	8.00	@	
Old News.....	.80	@	
Old Kraft.....	1.75	@	

TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	11	@	12½
Light tinted.....	12	@	13½
Dark tinted.....	13½	@	15
Ledgers (sulphite).	—	@	13
Writing	10½	@	13½
News, f. o. b. Mills—			
Rolls (carloads).	3.50	@	
Sheets (carloads)	—	@	4.25
Sheets (2 tons or over)	—	@	4.50
Book—			
No. 1 M. F. (carloads)	9.50	@	—
No. 2 M. F. (carloads)	8.50	@	—
No. 3 M. F. (carloads)	8.00	@	—
No. 1 S. C. (carloads)	10.00	@	—
No. 2 S. C. (carloads)	9.00	@	—
No. 1 Coated and litho. 15.00		@	—
No. 2 Coated and litho. 14.00		@	—
No. 3 Coated and litho. 13.25		@	—
Coated and litho., colored 15.25		@	—
Wrapping—			
Grey	4.75	@	—
White Wrap.....	5.25	@	—
"B" Manila.....	5.75	@	—
No. 1 Manila....	7.50	@	—
Fibre	7.25	@	—
Kraft, M. F. or M. G.	8.75	@	—

Pulp

(F. o. b. Mill)

Ground Wood.....$25.00		@	$32.50
Sulphite easy bleaching	60.00	@	65.00
Sulphite, news grade.	50.00	@	60.00
Sulphite bleached...	90.00	@	95.00
Sulphate	70.00	@	

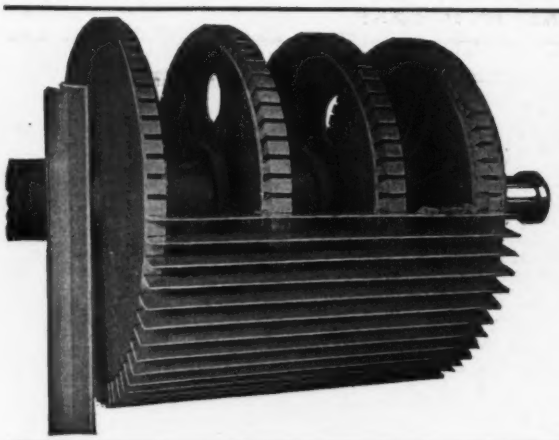
Old Waste Papers

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	4.00	@	—
Soft White Book Shavings	3.15	@	—
White Bl'k News	1.70	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.45	@	—
Light and Crumpled Book Stock	1.30	@	—
Ledgers and Writings	1.80	@	—
Solid Ledgers....	1.80	@	—
Manilas—			
New Manila Cut.	2.00	@	—
Printed Manilas..	.90	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News....	.90	@	—
No. 1 Mixed Papers	.60	@	—

Domestic Rags—
Price to mills, f.o.b. Toronto.

	Per lb.		
No. 1 White shirt cuttings	.09¼	@	.10
No. 2 White shirt cuttings	.05½	@	.05¾
Fancy shirt cuttings	.05½	@	.05¾
No. 1 Old whites	.04	@	—
Thirds and blues	.02	@	.02¼
	Per cwt.		
Black stockings...	1.75	@	1.85
Roofing stock			
No. 1.....	1.25	@	—
No. 2.....	1.15	@	—
Roofing stock			
Manila rope.....	.04½	@	.04½
No. 2.....	.01½	@	—
Gunny bagging ...	1.00	@	1.25



Dilts Machine Works, Inc.

Fulton, N. Y., U. S. A.

Manufacturers of

BEATING and WASHING ENGINES
FLY BARS—BED PLATES—
MACHINE KNIVES

Our new KEYED TYPE BANDLESS ROLL is the final result of Many Years of Experience.

May we not tell you about its many advantages?

The Lockport Felt

Use a Lockport ***Cylinder Bottom*** and ***Top*** combination for ***Board*** and watch your ***Felt Cost***

ASK THE MEN WHO RUN THEM

YOURS FOR SERVICE

LOCKPORT FELT COMPANY
NEWFANE, N. Y.

The John W. Higman Co.

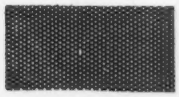
29 Broadway New York City

QUALITY
CLAYS
FOR ALL PURPOSES

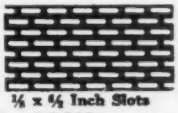
ENGLISH AND AMERICAN

Perforated Metal Screens

For Pulp and Paper Mills



.065 Inch Round



⅛ x ½ Inch Slots

STEEL, COPPER, BRASS, BRONZE and other Alloys

punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

CHARLES MUNDT & SONS
53-65 FAIRMONT AVE. JERSEY CITY, N. J.

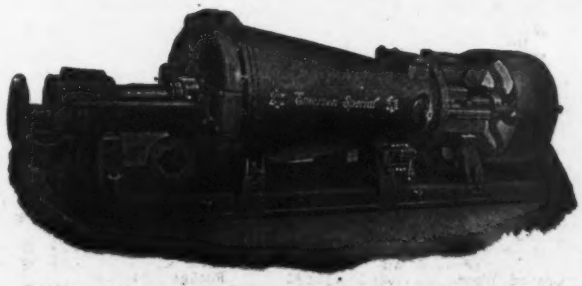
PAPER MAKERS CHEMICAL CO.
WESTERN PAPER MAKERS CHEMICAL CO.

EASTON HOLYOKE KALAMAZOO
JACKSONVILLE PENSACOLA ST. AUSTELL

CLAYS ROSIN SIZE
SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

EMERSON MANUFACTURING CO. LAWRENCE MASS.



See the Second-Hand Machinery ads and note the ABSENCE of

EMERSON
BEATING ENGINES

They seldom wear out and are never thrown out. PERFECT CIRCULATION. NO "PADDLING."

The "EMERSON" JORDAN

does its work with half the power required by others of no greater capacity.

WRITE FOR DETAILS

WANT AND FOR SALE ADVERTISEMENTS

CLASSIFIED RATES

Minimum rate for advertisements of 25 words or less, first insertion, $1.00.

SITUATION WANTED, 4 cents a word for first insertion and 2 cents a word for each subsequent insertion of same ad. No ad of less than 25 words accepted.

HELP AND MISCELLANEOUS WANTS, and small For Sale Ads, 4 cents a word for each and every insertion. No ads of less than 25 words accepted.

When answering advertisements, please address the Box Number given in ad.

Answers can be forwarded care Paper Trade Journal, and will be promptly forwarded without extra charge. All should be sent to the New York office, 10 East 39th street. And all should be addressed as the advertisement directs in every case and not simply to the paper.

All classified ads for the current issue must be in hand not later than Monday preceding date of publication.

HELP WANTED

SALESMAN WANTED—Familiar with Toilet Paper Market. Good salary to one who can produce results. State experience and salary expected by letter. Address, Sauquoit Toilet Paper Co., New Hartford, N. Y. A-20

SPECIALTY MILL wants superintendent with good conception of business, ability to develop ideas, and who is tactful and competent in handling help. A man familiar with cylinder and fourdrinier machines preferred. Applicant must state length of time in present position, experience fully, salary now receiving, and any other information that would be of interest to prospective employer. Address, Box 4976, care Paper Trade Journal. tf

WANTED—Experienced superintendent for paper bag manufacturing plant making square, flat, automatic, millinery bags, etc. Must be thoroughly competent to supervise all mechanical details, handling help, and get maximum production consistent with first class product. Must have all details of experience, salary expected, etc., in first letter. Address, Box 4993, care Paper Trade Journal. A-27

WANTED—Resident representative who is familiar with Paper and Pulp Mill supplies in New England territory, preferably Boston or Holyoke. Must be well introduced. Also for Pennsylvania territory at Philadelphia, and Middle Western territory at either Dayton or Cincinnati, as well as at Kalamazoo, Chicago, and Neenah or Appleton. Old established New York House. Address, Box 4994, care Paper Trade Journal. A-20

WANTED—Reliable machine tender, running tissues on cylinder machine. A good job for the right man. Apply Empire Paper Co., Ithaca, New York. M-4

ENGINEERS—DRAFTSMEN—A leading organization has position open for energetic, live and experienced resident engineer for paper mill construction; also in need of three or four draftsmen familiar with general plant equipment, lay-out in connection with paper, pulp and sulphite work, men of at least five years' experience wanted. Salary will be in accordance with ability. Address, Box 5007, care Paper Trade Journal. My-11

Classified Advertising
BRINGS
RESULTS

HELP WANTED

BAG PRINTER WANTED—One capable of taking complete charge of bag printing, composition, and stereotyping department. State experience, salary expected, etc. Address, Box 5008, care Paper Trade Journal My-11

WANTED—Salesman to solicit on a commission basis jobbing and consuming trade in Pennsylvania, outside of Philadelphia and Pittsburgh, for waxed and special treated papers. Address, Box 5009, care Paper Trade Journal. A-27

EXPERIENCED MEN in Paper Industry. Our confidential and personal service limited to the pulp, paper and allied trades. Can be of valuable assistance to you in locating desirable connections. Address, The Industrial Service Bureau, 1502 Monadnock Block, Chicago, Illinois. A-27

SITUATIONS WANTED

PAPER SALESMAN in New York City who can produce a large volume of business with adequate co-operation, desires connection. Drawing account on Commission basis. Correspondence invited. Address, Box 4635, care Paper Trade Journal. tf

WANTED POSITION—As superintendent. Twenty-one years' experience; used to Specialties, Colors and Wrapping, all grades of Boards and Fibres. Knows how to handle help. Can keep up repairs. Used to Fourdrinier and Cylinder Machines. Address, Box 4786, care Paper Trade Journal. tf

DOES YOUR MILL pay? If not, why not have a superintendent with proven ability and experience that will make it pay? Address, Box 4977, care Paper Trade Journal. Je-2

MAN WITH EXECUTIVE ABILITY desires position as Mill Manager. Years of experience in Paper Manufacturing. Expert in Sales, Purchasing, Cost, Accounting and Office supervision. Address, Box 4978, care Paper Trade Journal. A-20

EXPERIENCED BOSS BEATERMAN. Up-to-date man accustomed to nearly all grades, wants to make change after May 15, 1922. Address Box 5002, care Paper Trade Journal. A-27

POSITION WANTED as Machine Tender, experienced on Harper Edwards, cylinder with Halley Fuller Attachments on all high grade tissues. Address, Box 5003, care Paper Trade Journal.

SUPERINTENDENT of ability open for position with good company making box board, container board, wall board, bristol board or straw. A man that understands a plant thoroughly and gets good results. Address, Box 4997, care Paper Trade Journal. M-4

WANTED: WOOD PULP

To the wood pulp dealer or importer. If you are looking for efficient sales representation, this advertisement should not fail to interest you. A man, thirty-eight years of age, of recognized ability in sales circles and a splendid acquaintance with paper mill trade, is open for sales connection handling broad line all grades wood pulp. Will consider salary or commission offer that guarantees steady traveling east and west. If you have responsible pulp conections, let me hear from you. All communications strictly confidential. Address, Box 4930, care Paper Trade Journal. A-30.

SITUATIONS WANTED

BOSS FINISHER wants position—Thoroughly experienced finisher. All grades of Fourdrinier and Cylinder Papers. Competent and reliable. Highest references. Address, Box 5004, care Paper Trade Journal. A-27

POSITION WANTED by practical paper maker as superintendent, or will accept position as night boss in box board mill where production, quality and economy is required. Address, Box 4984, care Paper Trade Journal. A-20

SUPERINTENDENT - MANAGER Wants position. Twenty years' experience on all grades paper. Expert on colors. Fourdrinier and cylinder machines. Best references. Address, Box 4988, care Paper Trade Journal. MA-18

SUPERINTENDENT, General Foreman, or responsible office position, Envelope and Specialty Manufacturing, 18 years' practical experience, all branches. Familiar with costs and up-keep. Married, 38 years of age. Would like position. A-1 reference. Address, Box 4990, care Paper Trade Journal.

WANTED—Box Board Sales Agency for New England and New York. Two live wires about to open office in New York, solicit selling propositions from responsible board mills. Last three years with prominent New England Mill. Familiar with the fundamentals of board manufacturing. In close contact with trade requirements. Address, Box 5010, care Paper Trade Journal. A-20

PRACTICAL ACCOUNTANT and office manager, with paper mill experience, desires connection with New England mill. Twelve years' experience privately, and with professional firm, in finances, production, cost, accounting, systematizing and office efficiency work. Practical man who can eliminate unnecessary details and produce successful results in administrative and control work. Address, Box 5012, care Paper Trade Journal. A-27

SULPHITE PULP SUPERINTENDENT

At present employed with one of the largest manufacturers of ground wood, book papers of middle west, desires change of position. Thirteen years in manufacture of News, Sulphite for Book Papers. Familiar with manufacture and furnish of bleached ground wood. Married. Excellent recommendations. Address, Box 5016, care Paper Trade Journal. A-20.

MILL CONNECTION DESIRED

Successful and Well Established Selling Organization, with offices centrally located in New York City, familiar with trade in City and adjoining territory, wishes mill connections on wrappings, newsprint and other papers. Strictly commission basis. Address, Box 4998, care Paper Trade Journal. A-20

SITUATIONS WANTED

SUPERINTENDENT or assistant superintendent on tissues, toilets or towels desires position. Have had 17 years' experience in this line. A-No.-1 in production and upkeep. Can handle help. Location no object. Best references. Address, Box 5013, care Paper Trade Journal. M-4

MASTER MECHANIC desires position. Twenty years' experience in mills of all grades of paper and pulp, also on steam, water and electric power. Best references. Address, Box 5014, care Paper Trade Journal. J-16

SITUATION WANTED by beater engineer with 25 years' experience in fast news mills in States and Canada. Good color man. Best references. Address, Box 5015, care Paper Trade Journal. My-18

MANAGER open for position. Can make sulphate, also soda from pine or other woods. Ability to handle help and machinery to get results. Large experience making various kinds of paper. Practical on upkeep for continuous operation. Correspondence solicited. Address, Box 5017, care Paper Trade Journal. A-27

PAPER SALESMAN, now engaged, thoroughly experienced news, printing, coarse, and fine grades. Following among printers, publishers and jobbers, seeks new connection. Age 30, married. Christian. Address, Box 5018, care Paper Trade Journal. A-20

EXPERIENCED MAN, 32 years of age, connected with the paper industry for fifteen years, both as salesman and managerial executive, having thorough knowledge of fine, printing and coarse papers and boards, desires location with mill or reputable distributor. Address, Box 5022, care Paper Trade Journal. My-4

FOR SALE

FOR SALE: DRYERS—8-60"x120" Dryers with bearings. A bargain. W. V. Sullivan, Call Bldg., San Francisco. tf

FOR SALE—Paper machine reel 110" Face. Heavy pattern revolving reel for 4 drums. Marinette & Menominee Paper Co., Marinette, Wisconsin. tf

FOR SALE

One New York Safety 5" x 8" vertical steam engine, 32" x 4½" fly wheel, Pickering Governor.

One bank of 13 dryers 28" diameter, 80" face, set in two tiers, complete with top and bottom felt stretcher guides, and carrying rolls in first-class condition, with steam headers. Now in use.

One two drum reel for 84" machine complete, now in use.

One 10 plate, Harmon screen, complete with plates, driving pulley and three extra sets of plates.

One Pope Mullen screen, 10 plates, 12" x 42".

One 36" Holyoke Machine plater.

One 6" x 16" Holyoke Machine, horizontal, single plunger, belt driven, water pump.

Address, Box 4989, care Paper Trade Journal. A-27

FOR SALE

Box Board Mill, nearly new. Central New York State. Plenty land for expansion. Siding, water rights, small water power possibilities. All equipment first class. Well situated for raw materials and near a box making center.

Will consider sale outright or capital from responsible and experienced man. Address, Box 4955, care Paper Trade Journal. tf

FOR SALE

FOR SALE—Roofing and Saturating Machines, 72"x36" wide. Chilled steel rolls. Also Painter Mixing Machine, Grinders, etc. Address Box 4310, care Paper Trade Journal. tf

FOR SALE— 14 Calendar Rolls, 58" face, 2' 14" diameter. 2 No. 1 Claflin Engines. 1 small Jordan Engine. 1 6" Horizontal Water Pump. 2 Air Fans. Complete triple-deck frames for 44 Dryers. Will arrange terms to suit. Chesapeake Paper Board Co., Baltimore, Maryland. tf

FOR SALE—Three Howard Refiners, in A-1 condition. Address, Box 4999, care Paper Trade Journal. A-27

COAL—Moshannon and "E Seam" bituminous coals, low sulphur, low ash. Lowest freight rate east and north. Prices and freight rates will be furnished on request. Halden-Kelley Coal Company, 209 Market St., Clearfield, Pa. tf.

FOR SALE—60" Buffalo Forge Blower, practically new. Address, Box 5019, care Paper Trade Journal. A-20

FOR SALE—Two Dunning and Boschert Hydraulic presses, size 36 x 42", with 12 trucks and 50 extra mats. Address, Box 5020, care Paper Trade Journal. My-11

MISCELLANEOUS

WANTED—8 plate open Packer Screen with or without plates. State lowest cash price. Mill Department, Rose Lithographic Corporation, 55-33rd Street, Brooklyn, New York. A-27

WANTED—A single Drum Winder suitable for Winding Tissue, about 72 inch face. Address, Box 4948, care Paper Trade Journal.

PULP WANTED—Will pay cash for any quantity Foreign Pulps on spot and to arrive. Send particulars with price. Address, Box 4832, care Paper Trade Journal. tf

SWIFT, GEORGE W., JR., Designer and Manufacturer of Special Machinery for Manufacturing and Printing Paper Goods Bordentown, N. J. 8-24-22

The Want Columns

of the

Paper Trade Journal

are

Result Getters

—

TRY THEM

MISCELLANEOUS

WANTED TO PURCHASE Norwood Super Calender, 60" in width, 7 to 9 cylinders. Write full particulars. Address, Box 5021, care Paper Trade Journal. A-20

WANTED—Cylinder or Fourdrinier machine, trimming about 62". Mail full description, make, condition, and price to Box 41, Coshocton, Ohio. A-20

ATTENTION, BOARD MANUFACTURERS—We have the best location in the U. S. for a modern Board Mill. The advantage in freight over the nearest competitor will be $125,000.00 per year for 70 tons output. Located in large city where raw stock is available at lowest cost. Situated on R. R. direct to coal mines and an abundance of clear fresh water. Proposed mill practically designed. Will assist in financing or sell outright. If interested, address, Box 5011, care Paper Trade Journal. A-20

Treasury Department,
Office of the Secretary,
Washington, D. C., March. 30, 1922.

Sealed proposals will be received at this office until 11 o'clock A. M. Thursday, May 4, 1922, from manufacturers of bond, banknote and other fine papers for furnishing bank-note paper of the highest quality containing the distinctive feature now in use by the Department, for the printing of United States currency and other securities, national and Federal reserve bank notes, Federal reserve notes, etc., for the fiscal year beginning July 1, 1922. Blank forms for submitting proposals, with specifications and further information, will be furnished manufacturers who intend to bid upon application to this office where samples of the paper required may be examined.

A. W. MELLON,
A-20 Secretary of the Treasury.

Rebuilt Paper Mill Machinery in Stock and Guaranteed

NOT WHERE IS AND AS IS

FOURDRINIER TISSUE MACHINE—One 96", one 68".

FOURDRINIER PARTS—Pusey & Jones 118", 100". Kutter Trowbridge 96".

PRESS PARTS FOR PAPER MACHINES—Pusey & Jones bell crank housing two sets 18"x36", Black & Clawson swing arm housings with rolls.

DRYERS—Four 48"x111", thirteen 36"x95", four 48"x68", one 84"x67", eleven 42"x66".

MARSHALL DRIVES—Two Black & Clawson self-contained stand with friction clutch cone pulley and 6" mortise gears. Mortise gears and pinions for Pusey & Jones Marshall drives 5" to 8" face.

CHILLED CALENDERS—One 66" face, five roll; one 54" face, five roll.

DILLON DOCTORS—For Machine Calenders 60" to 120" face.

SLITTERS AND WINDERS—One 120" Warren, one 108", 36" Kidders.

REELS—Pusey & Jones two drum upright 48" to 114".

BEATERS—Five 72"x42" Noble & Wood, one 66"x42" Noble & Wood, equipped with three cylinder washers; one Dilts 62"x50" iron tub, one Jones 62"x52", seven Horne 36"x36". Two No. 2 Claflins, two No. 1 Claflins.

JORDANS—One Wagg Majestic, three No. 2 Dillon Improved, one Large Horne, four Monarch, one Jones Standard, two Pope Brushing engines.

SCREENS—Six 10 plate open side Packer, two 6 plate, one Moore & White auxiliary.

STUFF PUMPS—Deane triplex, 9"x8", Gould triplex 8"x10", Sandusky triplex 4"x6".

REVOLVING SHEET CUTTERS—One 104" Horne, five 61" Hamblet, four 61" Finlay, one 50" Hamblet diagonal, one 42" Finlay.

WET MACHINES—Four 72" Bagley & Sewall Hydraulic.

SUPER CALENDERS—One 45", one 42", one 36" Holyoke.

We have a large number of pumps and over five hundred calender, press and couch rolls in stock.

FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge, 40, Mass.

GIBBS-BROWER BULLETIN

We offer for sale the mill of The Merwin Paper Company, Windsor, Connecticut

Fully Equipped Specialty Plant in excellent condition. Four-Cylinder 65″ trim Paper Machine. Five beaters. Two Jordans. Winestock De-Inking Machine. Up-to-date electrical equipments operate entire mill. Abundance soft, clear spring water for manufacturing. Product Glazed Press Boards, Jacquard Card, etc. Production 10,000 lbs. 24 hours.

"You can buy this excellent little mill for one half of Its Actual Value."

GIBBS-BROWER COMPANY
Paper and Pulp Mill Brokers
261 Broadway **New York City**
Telephone—Barclay 8620
OUR MOTTO: "Service First."
Chicago Office: 181 Quincy St., Chicago, Ill.

A Complete New Power Plant
Never Used

You can Purchase This Equipment at a Very Reasonable Figure, Based on Second-hand Values—But You Will Have to DO IT NOW. We are at Present Dismantling the Rest of the Plant.

BOILER PLANT EQUIPMENT:
2—520 HP. Babcock & Wilcox Water Tube Boilers, 200 lbs. working pressure; 5,201 sq. ft. of heating surface, including also: B. & W. Superheaters, Type "S" Diamond Soot Blowers, Type "E" Combustion Engineering Stokers, Forced Draft equipment turbine driven, Vacuum ash conveyor system, 2,500 HP. feed water heater, 2 Worthington 14x8½x15 Duplex pumps, all valves and steam lines in boiler room.

POWER EQUIPMENT:
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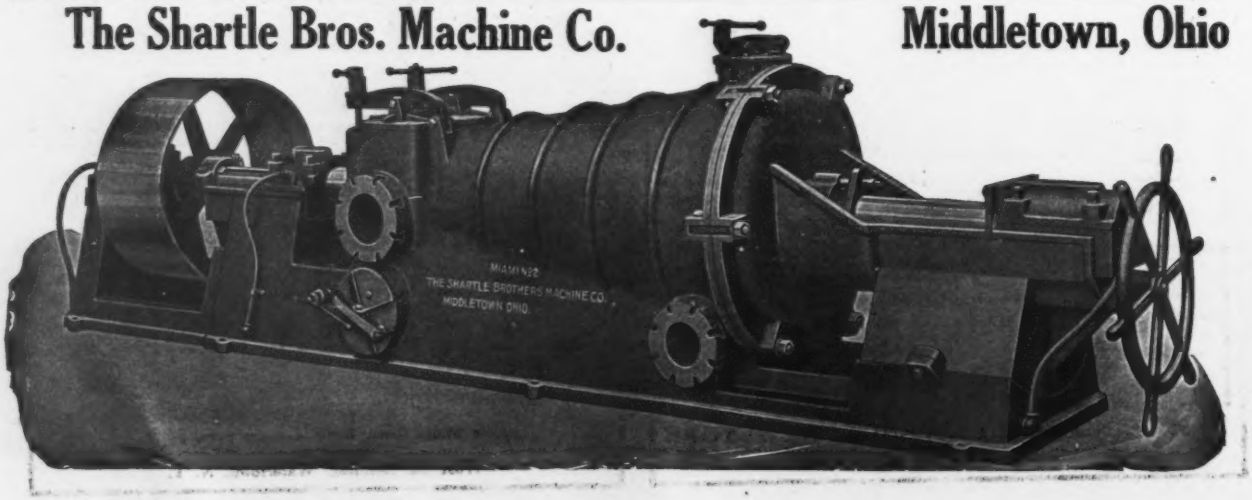

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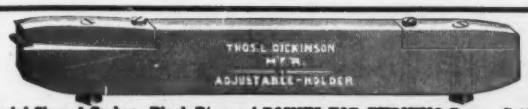

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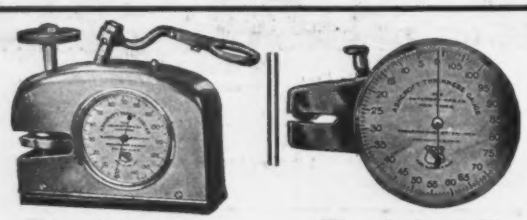

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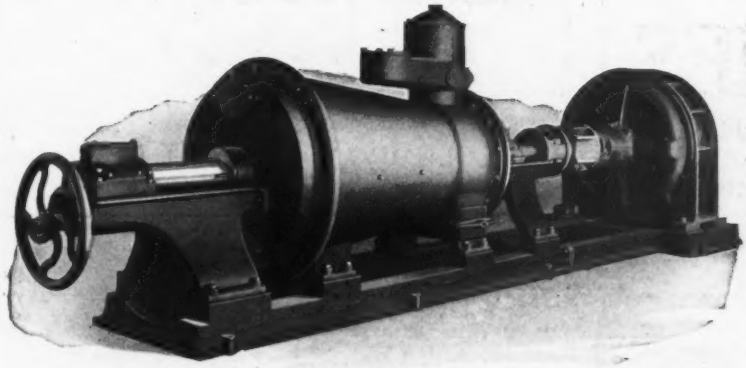

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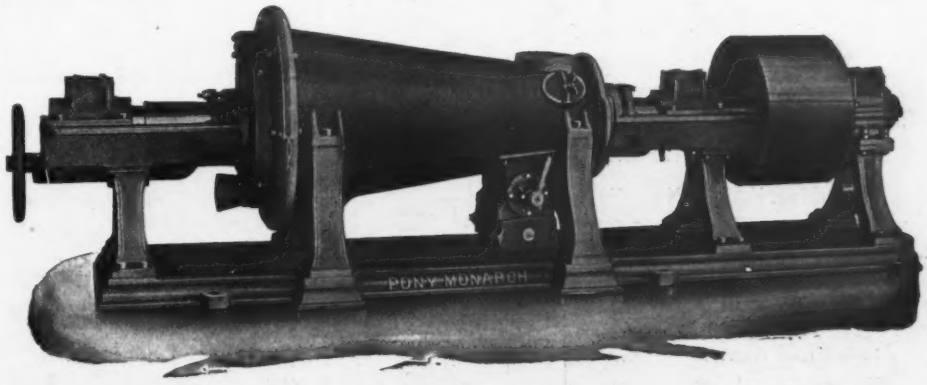

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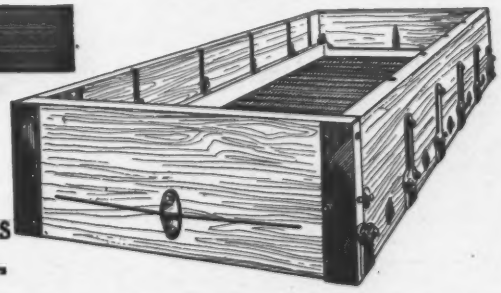

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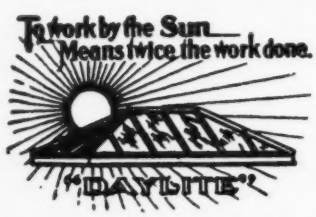

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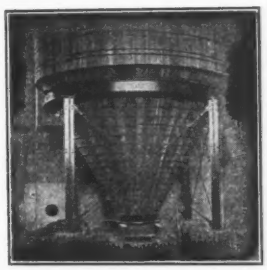

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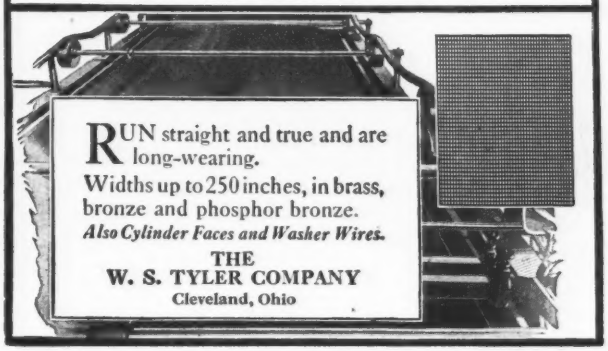

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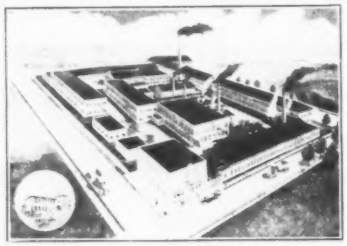

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